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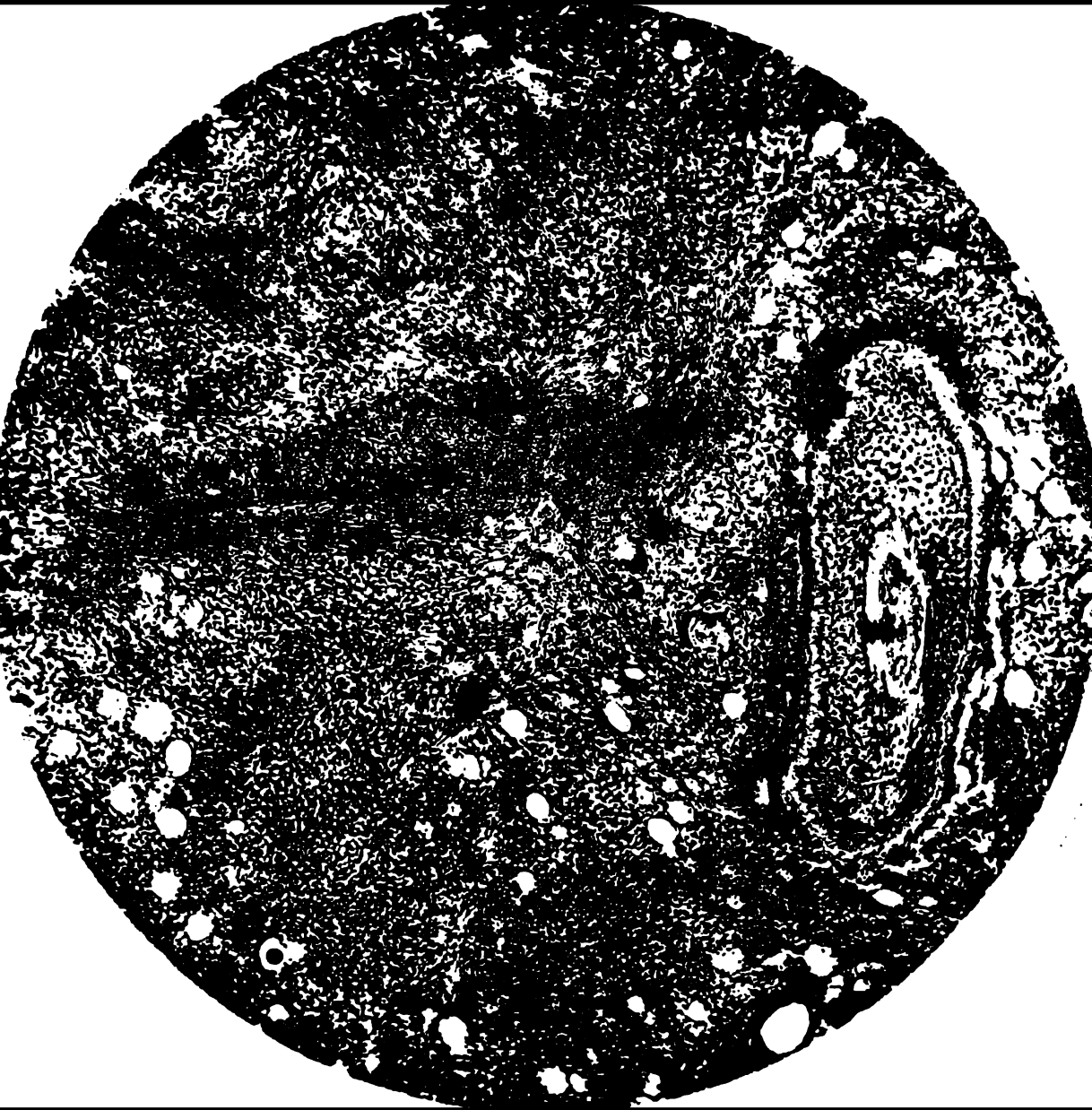
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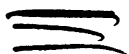
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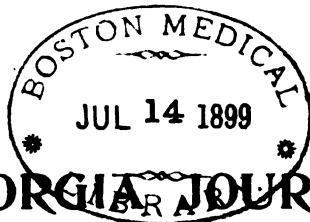
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No. 1.

ORIGINAL COMMUNICATIONS.

THE SURGERY OF TYPHOID FEVER.*

BY HUGH M. TAYLOR, M. D.

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The evolution of Aseptic Surgery has broadened the scope of operative interference to such an extent as to call for not a few protests against the "furor operativus." Let me urge that conservatism is not always embodied in the idea of masterly inactivity. Surgery has for its highest ideal to treat directly the cause of disease and death. Asepsis has brought within the province of conservative surgery many conditions heretofore considered beyond its resources. Not one of the least promising fields of usefulness, recently much impressed, is the surgery of complications arising in typhoid fever. (1) In the treatment of typhoid perforations by celiotomy, and suturing the perforation or perforations, we have a last resort in what are practically hopeless cases without operation. (2) In the treatment of the irremediable hemorrhage we have in celiotomy and ligation a resource which offers a reasonable prospect of doing good. (3) In transfusion for the relief of the effects of profound hemorrhage and shock, we have a remedial measure of great value. Typhoid fever in all of its phases has, until recently, by all except a few pioneer students of the subject, been considered essentially a medical subject.

It is claimed that from one to two per cent. of all the cases of typhoid fever patients have perforation. It is claimed that six per cent. of the deaths from typhoid fever are from perforation. From one to two per cent. of all the cases of typhoid fever then come within the province of operative surgery, and six per cent. of all cases dying from typhoid fever are essentially surgical.

The field of surgery in typhoid fever complications is even wider than that indicated in the treatment of perforations. In the Munich

*Read before the Richmond Academy of Medicine and Surgery.

Hospital report of two thousand cases, ninety were attended by intestinal hemorrhage. Some of these jeopardized life from the profuse bleeding. Most physicians have sat helplessly by the side of patients bleeding to death from hemorrhage of the bowels. Opium, ergot, mineral acids, and tannic acid are in my opinion poor remedial agents for such a catastrophe, shock or syncope. Nature's potent hemostatic, contraction and retraction of the vessels is probably the remedy which stays the bleeding.

I recall a case in my practice some years ago in which a young man literally bled to death in twenty-four hours from bowel hemorrhage. This patient had been in bed with fever only a week. He may, and probably did have, fever a week before he gave up and went to bed. No such case should be left to the resources of nature, aided by such questionable measures as the medication I have mentioned. Laparotomy, and an effort to arrest this hemorrhage, is as rational as laparotomy for the arrest of hemorrhage incident to ruptured ectopic gestation. Fortunately we do not often meet with cases of fatal hemorrhage such as I have described, but if we do meet with them, we will have fewer sins of omission to answer for, if we make an intelligent effort to control a hemorrhage immediately dangerous in some instances, remotely serious in all, because of progressive anemia incident thereto. I have heard the statement made that patients often seem better after a moderate hemorrhage. I know nothing to justify such a statement. Hemorrhage as a rule results from the separation of a slough in an ulcer; in other instances from the margin or surface of an ulcer devoid of a slough, and perhaps in exceptional instances from an engorged mucosa, all of which conditions point to actual or threatened bowel lesion. If the life of the patient is endangered from hemorrhage or repeated hemorrhage, and the danger line is not passed after medication and saline transfusion, open the abdomen. What then? If the bleeding point can be ascertained and compression of the vessels in the mesentery does not control it, then a resection of the ulcer and enterorrhaphy is justifiable. If compression of the mesenteric vessels will control the bleeding, then the feeding vessels should be ligated. As far as I know this practice has never been carried out. It may sound extremely radical. Granting this to be true, you will be fortunate if in your practice you do not in exceptional instances meet with cases so desperate as to warrant heroic practice. Dr. Hunter McGuire seems to have been the first to urge this practice.

It is the family doctor, and not the abdominal surgeon, who will at first have to assume the responsibility in connection with the complications of typhoid fever. This impels me to urge that the surgeon should be called early. I would urge that the wise physician is he who sends for the surgeon early, and the wise surgeon is he who is prepared to operate upon a moment's notice.

Before considering the phase of our subject of widest scope and greatest interest, typhoid perforations, let us consider for a moment

the field of usefulness of transfusion in typhoid fever. In the shock incident to perforation or hemorrhage, in the acute anemia, incident to prolonged ptomain poison and possibly as a remedial measure in the treatment of the ptomain poison, we have in the transfusion of normal saline solution an agent of great potency. In puerperal sepsis, in puerperal eclampsia, and in surgical kidney and other forms of sepsis, transfusion has been practiced with the idea that lavage of the blood favors elimination of ptomain poison. Upon the same principle, transfusion may be found of value in favoring the elimination of the typhoid ptomain. Certainly in the depression incident to hemorrhage and shock in typhoid fever its influence for good is often marked. Some months ago this fact was impressed by a case, which occurred in my practice. In the seventh week of fever, after profuse intestinal hemorrhage, a young woman was apparently dying from exhaustion; was cold and sweating and unconscious from great depression. Respiration, 30 or 40; pulse, 140°, and absent at the wrist. The continuance of life seemed a matter of only an hour or two. Whiskey, strychnia, digitalis, caffeine, and nitro-glycerine had been pushed as rapidly as was thought safe, with no perceptible influence for good. A quart or more of saline solution injected in the cellular tissue of the thigh and shoulder became diffused by massage, but apparently was not taken up by the vessels; it certainly produced no appreciable effect upon the heart. Such was the undistended condition of the blood vessels, even after cording up the arm it was difficult to find a vein. Into the open vein the sharp point of a glass pipette of an eye-dropper was fastened by a ligature, and the other end of the pipette was fastened in the end of a long tube attached to a fountain syringe. This quickly improvised transfusion apparatus acted nicely. By the time as much as a pint of fluid had been introduced into the vein the pulse was full and strong, and the introduction of a quart in all, increased the volume and arterial tension until the moribund patient's pulse was as strong as that of any of the attendants. The skin became dry, the color of the face and lips more natural, and the extremities warm. Not much improvement in the breathing was noticed; and while the volume of the pulse was so much improved, its rapidity was not correspondingly decreased. The pulse-rate continued very rapid, and the respiration rapid and shallow.

The improvement after the transfusion lasted five or six hours, at which time the pulse lost in volume until the wrist-pulse was indistinguishable. Transfusion direct was again resorted to with the same encouraging result of increasing the arterial tension and drying the skin, but no effect upon the pulse-rate or respiration was apparent. This last function became more and more embarrassed, and was the ultimate cause of death.

My experience in this case impresses me with the belief that we have in transfusion a means of great value in the depression incident to hemorrhage in typhoid fever, and possibly an adjunct in the

depressed circulation resulting from any one or more of the many complications arising in typhoid fever.

In severe hemorrhage or shock from perforation, transfusion is certainly a safe expedient, easily adopted and a resource of great good. In severe hemorrhage or shock from perforation, transfuse, but in this instance, as in all cases of hemorrhage, haemostasis must rapidly follow transfusion, or else the reaction secured to a large extent by transfusion will empty the saline solution out of the same vessels from which the blood escaped. Transfusion itself is credited with haemostatic properties. The saline solution stimulates the heart's action, causes the capillaries as well as the large vessels to contract.

The mission of operative interference in perforations from typhoid ulceration should be to limit or prevent local or general septic peritonitis. We best limit peritonitis by preventing its occurrence. The key to the successful treatment of this lamentable condition is an early diagnosis and an early resort to operative measures. My experience with cases in which perforation has occurred warrants the assertion that an early diagnosis is usually made. Within the past month I have seen in consultation two cases in which the symptoms were so plain that a prompt diagnosis was easily made. This was equally true in a case which occurred in my own practice about a year ago. This last was the first I have been called upon to treat, since the possible good from operative interference has been so clearly impressed.

The patient had been sick only a few weeks, the typhoid fever was mild, and convalescence was thought to have set in. Acute abdominal pain and shock were the cardinal symptoms which enabled me to recognize the grave complication, and to urge immediate operative interference. Inevitable death was prognosed without operative interference, and probably a fatal issue in spite of even prompt action. The friends and relatives of the patient refused to sanction the operation. Septic peritonitis was fully developed in forty-eight hours, and impending death caused those who had assumed the responsibility of denying the patient his only show for life to implore, now when it is too late, that the resources of surgery be applied. I did wrong perhaps in yielding to their request. The uninitiated cannot differentiate between an operation performed to prevent septic peritonitis and one done to cure it. The fatal issue is not credited by this class to the want of early operation. Naturally in their opinion the operation is the immediate cause of the death. We should endeavor to educate the people to know that the death in this and allied conditions is due to a continuation of the morbid processes for the relief of which the operation is done. We should never lose the opportunity to impress the idea that an early operation is conservative in its broadest sense. Not to the operation, but to the want of an early operation, should be credited the fatal issues.

An operation in a condition which is almost hopeless, and the fatal issue, deters some other cases from being operated upon. It has been my rule to give the patient the benefit of the chance, if it be only one in a thousand. The effect of this policy was seen in a case I saw in consultation a few weeks ago. Unfortunately this last patient lived next door to the one just mentioned, and knew all the circumstances attending his sickness, the late operation and the fatal result. In the midst of a mild attack of typhoid fever perforation took place. Sudden and continued abdominal pain stamped the disease. Operative interference was advised and refused by the husband of the patient, and refused because he had promised her to do so. A few nights before she had dreamed that perforation had taken place, and that the doctors advised an operation. The effect of this dream was to make the husband promise not to sanction an operation. Doubtless the dream was the outcome of thinking of the fatal case, which had not long before occurred next door to her. This splendid young wife and mother was allowed to die, which she did in forty-eight hours, without an effort to repair the ulcer.

A third case recently seen in consultation illustrates the disaster of procrastination. A young man in the third week of a moderate attack was taken with the typical symptoms of perforation, i. e., acute pain, shock, etc. The sudden onset of the symptoms, almost like a thunderbolt from a cloudless sky, typifies the condition of perforation. In forty-eight hours diffuse peritonitis, with the usual symptoms of distension, vomiting, depression, etc., was at its maximum, and here was another case, which had been allowed to pass from the realms of possible to that of hopeless surgery. Another instance in which the operation would be credited with death and no account of the septic peritonitis from the contents of the small bowel (always fluid) pouring into the peritoneal cavity, be taken. If we could only impress the idea that the patient dies from the disease which the operation seeks to cure, and the idea that the early operation seeks to prevent a disease so fatal to life. The facts in the case were fully explained to the friends of the young man. Only the faintest shadow of hope was held out to them, and it was devoutly hoped that they would elect to let him die without an operation, but they grasped at the last straw, and we were placed in the embarrassing position of operating upon a moribund patient. A section after direct transfusion revealed general fibrino purulent peritonitis, and a small pencil-sized hole in the ileum, twelve or fifteen inches from the ileo-caecal valve; from this fluid fecal matter poured whenever the bowel was moved. The suturing, irrigation and provision for drainage with glass tubes and gauze, was the work of a few minutes. The condition of the patient did not warrant the time necessary to disentangle the matted bowels, or to wipe off the abundant fibrinous deposits found extensively covering the intestines. As was to be expected death ensued shortly after the completion of the operation, and the finale added another stone to the immeasura-

ble monument dedicated to procrastination in surgery. With an experience with three recent cases, two of them operated upon, but both so late that an operation was hardly justifiable in either, and the third case in which operation was declined because of a knowledge of the fatal issue in the first case, it is but natural that I should appreciate the needs of educating the profession and public to appreciate the idea that delay is fatal; and that it is not just to the surgeon, to surgery, or to the patient, for the medical adviser to procrastinate until the case has passed beyond the province of surgical recourse. It is claimed that no condition save a moribund one, contra-indicates operative interference. While this is true as evidenced exceptionally by the recovery of such cases, the clinical picture presented by an operation done to prevent the consequences of perforation is much less horrible than one done to cure such disastrous consequences. Not a few practitioners, having the responsibility of such cases in hand, will excuse themselves for sanctioning delay because of, what I think is a wrong opinion, that perforation may exceptionally occur, and be recovered from by the unaided efforts of nature. I am strongly of the opinion that the supposed instances of recovery were not really perforations into the peritoneal cavity. While every abdominal surgeon is often impressed with the wonderful repelling power of nature, impressed with her almost superhuman power to block by plastic peritonitis avenues of infection, I do not believe she is ever equal to the task of limiting the outpour of fluid feces from a typhoid perforation. Necrosis of mucosa muscularis and localized peritonitis with an intact peritoneal covering of the ulcer is, I think, not infrequent. Agglutination around the weakened bowel wall of omentum, mesentery, etc., by the plastic peritonitis, is a further sequence, but this morbid condition is not perforation into the peritoneal cavity. Fibrino purulent and septic peritonitis and not plastic is the type of peritonitis incident to contamination by the fluid feces of typhoid fever. It is a forlorn contest between nature and sepsis incident to a perforation direct into the peritoneal cavity, and the sooner this idea is impressed, the sooner will the surgery of typhoid fever be placed upon indisputable grounds.

My experience, limited it is true, while intensely impressing the idea that delay is fatal, is emphatically in accord with those who hold—

1st. That perforating typhoid ulcer can be and should be diagnosed prior to the development of local or diffuse septic or fibrino purulent peritonitis.

2nd. That a perforation of a typhoid ulcer into the peritoneal cavity means the discharge of virulent septic contents in quantities far too large to justify the hope of its being circumscribed by plastic peritonitis.

3rd. Diffuse septic or fibrino purulent peritonitis with inevitable death, if left to the resources of nature, is the unvarying result of this complication of typhoid fever.

4th. That the treatment of complete typhoid perforation is essentially surgical, and the surgical treatment is logically conservative. That the treatment of uncontrollable hemorrhage with the view of preventing immediate danger and subsequent increased anemia, is probably within the provision of rational surgery. Rectal, cellular and direct transfusion is a resource of great value in the treatment (a) of shock, (b) of hemorrhage, (c) probably of ptomain poison.

5th. That the death rate is large in spite of, and not because of operative interference, and in complete typhoid ulceration is increased by each hour of delay in resorting to operation.

6th. That the mission of operative interference is to prevent septic and fibrino purulent peritonitis.

7th. The idea should be impressed that the time often conceded by the physician as warranting operation, i. e., the developed condition of diffused peritonitis, is the time practically conceded by the surgeon to be too late, the case having then passed with few exceptions beyond the province of rational surgery.

8th. Not even a moribund condition should excuse us for abandoning patients with typhoid perforation, since suppurative peritonitis from just as desperate sources has been brought within the scope of successful surgery by an improved technique.

9th. The statistics, though too few to be conclusive, support the opinion that timely surgical interference is conservative rather than radical. Of fifty-two cases recorded, seventeen recovered, 32.68 per cent.; or, excluding some doubtful cases, of forty-five operations, eleven recovered, a percentage of 26.22. While these statistics will be changed for the worse by the cases it has been my misfortune to see, there are doubtless successful cases, reports of which I have not seen, to offset them, and with a due appreciation of the possibilities of early resource to operative interference, I anticipate marked improved statistics in the near future.

The technique of the operation does not differ from that in vogue in the treatment of intestinal perforation and its consequences from other causes. A knowledge of the fact that the perforation is in a majority of instances single, and occurs in the ileum within eighteen inches of the ileo-caecal valve enables the surgeon to find the lesion without much trouble.

It is claimed that there is hardly a well authenticated case of gunshot wound of the bowel with recovery. I am skeptical as to the correctness of the diagnosis of complete typhoid perforation with recovery; certainly in the absence of a post mortem. Those who have seen the fluid fecal matter pouring out of the perforation will appreciate how small must be the chance of preventing infection in any way other than by an operation, and will, I think, be a sufficient appeal to us to do the best we can, by operating upon even the most desperate cases.

THE TREATMENT OF DEFORMITIES OF THE HAND.

By A. M. PHELPS, M. D.

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New York City.

I would like to briefly consider (1) Dupuytren's contraction; (2) Deformities from burns or scars, and (3) from muscular contraction; (4) hypertrophy and congenital deformities.

Fig. 1 shows a dissection of the hand. We are apt to get the idea that the palmar fascia arises from the annular ligament, and passes down toward the finger, but I think if we examine this photograph, we shall find that the ramifications pass off to every portion of the hand, not only to the sheaths of the tendons, but to the skin and cellular tissue. We can understand how injury to any part of this fibrous tissue may give rise to the deformity known as Dupuytren's contraction. The field has been pretty well covered by Mr. Adams, of London, but I should like to give my experience with this contraction.

Dupuytren's contraction does not occur in women, and I have never seen it in the child. It attacks the adult male, and usually the middle finger or the ring finger. In the right hand, it more frequently attacks the ring finger than it does in the left hand. There is a reason for this. This (Fig. 2) photograph of the hand was taken from a workman, a saw-filer. The file impinged on the ring finger and little finger. He developed a Dupuytren's contraction of these fingers. This case demonstrates that Dupuytren's contraction in his case is produced by an injury to the palmar fascia, and where this injury occurs, the particular portion of palmar fascia that has been injured will develop the contraction. Adams thinks that Dupuytren's contraction is caused by gout and rheumatism. Dr Abbé, of this city, believes that it is not, and I fully agree with him. In these cases there is not only a contraction which seems to always occur at some point of previous irritation, but there is a nervous element—a neuralgia, which streaks into the shoulder and down into the other arm. It is not uncommon for Dupuytren's contraction to be developed first in one hand, and subsequently in the other. It is believed that pressure and irritation of the terminal nerve-plates produces reflex action and contraction in the opposite palm. I am not prepared to discuss this point at present. The cutting of the palmar fascia, however, relieves the neuralgia.

There was a time when a machine was put on the finger to gradually stretch the contraction, but this treatment has been abandoned, because all cases so treated were found to relapse. Adams first described the operation which now bears his name. He inserts a fascia knife at the junction of the palmar fascia with the annular ligament, and divides it; he then divides the fascia into small sections, and stretches the parts. When he reaches a point at the junction of the phalanx with the metacarpal bone, he again divides the contracted fascia. Sometimes the fibrous tissue which



Fig. 1.



Fig. 2.



Fig. 3.



Fig. 4.



Fig. 5.

Fig. 6.



Fig. 7.



Fig. 8.



Fig. 9.



Fig. 10.

has become contracted runs down like the tines of a fork to either side of the phalanx. Unless these fasciculi are divided, it will be impossible to reduce the deformity thoroughly. This condition is not invariably present.

The only other important operation is that of Kocher. He makes an incision along the contracting band, cutting it off at the annular ligament, and dissecting it out entirely. My experience has been that a large number of Adams' operations relapse; whereas, those which I have done by Kocher's method have not relapsed. This observation taught me that much judgment is necessary in selecting cases for proper methods of operation. The milder cases may be operated upon successfully by Adams' method, remembering that a large per cent. will surely relapse; but the more severe ones should be always treated by Kocher's method. Sometimes one method is applicable to one finger, and the other to another contracted portion. I have almost wholly abandoned Adams' operations. Adams, in his first writings, did not call attention to an accident which is liable to occur to the palmar fascia. I quote a case illustrating this point. After the operation on his hand, I super-corrected, and, as a result of this tension, inflammation occurred; the parts were glued together by inflammatory material, and the man forever lost the use of that hand. Be careful, then, to place the hand in the semi-flexed position, and keep it there until healed; then it will straighten out of its own accord. One or two sutures only are necessary to close the wound, otherwise there is likely to be too much tension. In about a week the wound will be healed. Fig. 3, result of Fig. 2, after a Kocher.

Another deformity of the hand is an hypertrophy of the fingers. It may be mistaken for a syphilitic dactylitis; it is really, however, a very vascular hyperplasia. The fact that it is not painful should distinguish it from syphilitic dactylitis (Fig. 4.) A plastic operation removing growth, is indicated.

Undoubtedly one of the most serious of accidents is an extensive burn of the third degree of the hand. Such an accident not only uncommonly follows cleaning gloves with benzine near an open flame. When granulations have formed, we now graft by Thiersch's method. This will frequently prevent further contractions, but sometimes contraction will continue, and the digits will be drawn in the direction of contraction. In such a case resection should be performed, thus shortening the fingers, but keeping them straight. Another good way is to raise a band of skin from the breast and thrust the hand under it. When this flap of skin has become united to the hand, its attachment to the body of the patient may be severed. At the City Hospital I often resort to this last method. Wyeth and Bull have reported such cases.

Fig. 5 is from a photograph of a young man who had received an injury of the palm of the hand. He was a machinist, and had a hooked finger, which would catch in the machinery. His fingers were contracted into the palm of the hand. I resected three-fourths

of an inch from each one of the phalanges, and with very good result, as shown in Fig. 6. He now has a very useful hand.

Figs. 7, 8, 9, 10 are from another photograph, showing a case in which I took out two-and-a-half inches of the radius and ulna. The hand was extremely flexed from infantile paralysis and the foot in extreme equino-varus. In club-hand, as in club-foot, we must either lengthen the soft parts, or shorten the bone. I operated once upon a case by cutting soft parts, and secured a perfectly straight hand, but the tendons of the forearm became so adherent that motion of the fingers was nearly destroyed. It was this that led me to believe that it would be desirable to shorten the bones. If a tendon which runs through a fibrous sheath is divided, either subcutaneously or by open incision, the tendon is likely to unite to the sheath, and so have its usefulness impaired or destroyed. If one or two tendons only of the wrist are contracted, and are causing the deformity, then they may be divided subcutaneously, but when all the flexors are contracted, I think it is better practice to resect the radius and ulna at the wrist joint to avoid non-union of the bones. Where there must be a considerable separation of the divided ends of the tendon following tenotomy, tendon grafting must be resorted to, or else to the method of splitting the tendons and allowing them to slip by without being so far separated as to preclude union.

Several operations for webbed fingers have been proposed. Adams proposed to perforate between the fingers, and then insert a silver ring, which was to be worn until the part had healed, after which the web was to be divided. The danger is that if you cut through the web it will gradually grow in and become webbed worse than before, and the fingers flexed. The original operation for webbed fingers consisted in dissecting up a flap from the palmar surface of one of the fingers, and the dorsal surface of the other, and in wrapping each flap around the other finger. I have found it very difficult to wind these flaps around the fingers. My plan is to dissect up a small flap at the root of the finger and insert it between the fingers from each finger, instead of dissecting up a flap the whole length of the web. I find it answers the purpose just as well.

THE EVOLUTION AND PERFECTION OF THE ASEPTIC SURGICAL TECHNIQUE.*

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It is not purposed in this paper to trace every step in the origin and development of aseptic and antiseptic surgery, or to discuss the comparative merits of various germicidal agencies. The relation of micro-organisms to wound infection and the efficacy of aseptic and antiseptic methods in surgery have now passed beyond controversial

*Read before the Southern Surgical and Gynecological Association.

limits and have reached the finality of absolute demonstration. Notwithstanding that a revolution has been wrought in surgery in consequence, much yet is needed to perfect the modern system of wound treatment. While the conditions underlying wound infection are generally understood and accepted, the technique observed by operative surgeons generally is not so thorough as to secure that precision and uniformity in results which theoretically should be obtained, and which undoubtedly is practicable. It seems that the present is a most opportune time for surgeons to review bacteriologic data and working methods based thereon, so as to eliminate all that is useless and superfluous in order to concentrate attention upon that which is absolutely essential.

The first definite and refined experimental data initiating modern ideas of wound treatment undoubtedly came from Pasteur, who demonstrated the relation of bacteria to fermentation and putrefaction, and thus suggested that the phenomena which occurred in wounds were due rather to the entrance of something from without than to some cause within. Pasteur showed that putrefaction was a fermentative process caused by the growth of microbes, and that these organisms do not arise *de novo* in the decomposable substance, the germs abound in the air. Lister inaugurated a system of wound treatment founded upon these observations. The primal idea in Lister's mind originated in the common observation of the difference in the clinical course of simple and compound fractures.* It was most logical that he should have regarded the air as the bearer of infected germs, begetting in open wounds the fermentative process of suppuration so analogous in all essential features to the putrefaction of animal fluids and solids. His conception was to treat the wound with some substance which, without doing serious mischief to the tissues, would destroy the microbes already contained and prevent the access of others in the living state. For this purpose he selected carbolic acid with which, in solution, he treated the wound, hands, instruments, and every thing which might come in contact with the wound. Regarding the air as the chief source of infecting bacteria, he hoped by a spray of carbolic acid to disinfect the air over and about the field of operation. The dressings applied to the wound were permeated with carbolic acid, and all possible precautions were observed in their arrangement to exclude the air. The very essence of all the great advances in surgery and medicine based on bacteriologic investigations, and which have revolutionized the practice of both medicine and surgery, is contained in this apparently simple induction by Lister. It detracts in no way whatever from the value of his discoveries that advancing knowledge has improved and simplified the methods originally instituted by the founder of antiseptic surgery. The great pivotal fact stands just as Lister worked it out, that infection of wounds is effected from without and is due to micro-organisms acting in an analogous manner to

*Presidential Address before the British Association for the Advancement of Science, Liverpool September, 16, 1896.

similar forms of life in begetting fermentation and putrefaction, as demonstrated by Pasteur. The mental picture formed of the difference in healing of a simple and compound fracture is as illustrative to-day as in 1867.

As already observed, Lister's early work, though abounding with experimental studies relating to changes produced by bacteria when admitted into blood and milk, was based upon analogies drawn from the relation of bacteria to the processes of fermentation and putrefaction. Almost nothing was known as to the specific character of the bacteria producing suppuration and other processes of wound infection. In 1878 Robert Koch made an epoch in the development of bacteriology, which established a definite scientific basis for the perfection of Lister's ideas. Koch demonstrated that various insectous diseases were caused by specific micro-organisms. Three years later Koch gave to the world the details of his method of isolating and cultivating bacteria in solid transparent media, which made possible the great discoveries of modern bacteriology. Indeed, at this period it may fairly be claimed that the science of bacteriology was born. The studies of Ogston, Rosenbach and Passet upon the bacteria of suppuration followed, and the pyogenic staphylococci and streptococci were demonstrated. The character and habits of these great enemies of the surgeon, their method of access to wounds, and distribution inside, were studied by observation and experiment. These important deductions were soon made known: First, that atmospheric microbes are mainly of an innocent character as related to wound infection, that the habitat of micro-organisms is upon the surface of ordinary objects and not in the air, and that infection comes from contact. Second, that the fluids and cells of the animal body are capable of disposing of a considerable number of pyogenic bacteria without appreciable injury. The practical application consisted in dispensing with the spray; in concentrating attention toward excluding germs from wounds and in discontinuing the application of strong germicidal agents which destroy the physiologic resistance of the tissues to germ invasion. These latter observations will be recognized as the rational basis upon which asepsis was established. The perfection of methods of drainage for the double purpose of removing the pabulum most acceptable to germ development, and to prevent tension, belongs to the Listerian system; as does also the use of the animal ligature, which may be readily disposed of by the tissues instead of remaining as irritant.

These fundamental bacteriologic principles compose the basis of modern surgery. Within a few years standard and classic treatises on surgery were rendered obsolete; new text books had to be written. The science and art of surgery attained a perfection in practical results surpassing the highest ideals of the surgeons of preceding generations. New departments of surgery were established and regions invaded which were hitherto outside the scope of operative treatment. The science and practice of midwifery were also

revolutionized and all former teachings recast. The results are the pride of our profession and the wonder of the latter half of the nineteenth century. The influence of the discovery and classification of the pathogenic bacteria upon surgery can scarcely be appreciated by surgeons themselves without reflection. Indeed, until this time surgery could scarcely be called a science; it was practiced for the most part as an art.

The great facility of absorption possessed by the peritoneum made abdominal surgery the field of conflict for deciding the comparative merits of asepsis, and the relation of bacteria to wound infection generally. By many the protection assured by sterilization and mechanical cleansing, without chemical germicides, was interpreted as disproving the bacteriologic basis of modern wound treatment. The injurious local effects of chemical germicides became generally recognized in abdominal surgery and these agents were soon eliminated from the technique of this department of surgery. The influence of abdominal surgeons in promoting aseptic methods to the superseding of antiseptic agents is well known. Moreover, increased experience showed that chemical germicidal agents do not possess the vigor of germ destruction first attributed to them. Much of this confusion was due to the failure to recognize the power of the tissues to resist germ invasion, and that in all surgical operations a certain degree of bacterial infection is overcome by this resistance.

The conflict between the advocates of asepsis and antiseptics was most unfortunate. Reliance upon antiseptics begot a disregard for mechanical cleanliness, and established a confidence in chemical germicides to atone for slovenly methods throughout an operation. Moreover, the profession was slow to recognize that the germicidal power of a chemical agent, as shown by experiment within a small area, is not proportionate when applied to large operative fields. Again, it was some time before it was conceded that such chemicals impair the tissues of wound surfaces and weaken their resistance to microbic invasion.

At this stage of the evolution of modern surgical methods professional opinion was in a state of great confusion and uncertainty. Many leaders of surgical opinion, while practicing asepsis (and this is especially true of the Birmingham school of surgery) derided all bacteriologic discoveries and repudiated germ invasion as the cause of septic infection. This school of surgeons used the term "dirt," and lauded "cleanliness," repudiating the terms "bacteria" and "sterilization." The result was that many practitioners of surgery were misled; confidence in fundamental principles was impaired or destroyed; and only half-hearted efforts of antiseptics and asepsis were put forth. The disastrous results of those times are fresh in the memory of all present. These discussions have now ceased, and throughout all civilized nations, where surgery is taught and practiced as a science, the principles of Lister are accepted and applied.

With the knowledge we now possess as to the relation of micro-

organisms to wound infection it might be reasonable to presume from a theoretical standpoint that suppuration and systemic infection should be altogether banished from surgical experience. Indeed, with the precise knowledge derived from bacteriologic investigation as to the pyogenic bacteria, and the demonstrated resources for their destruction and elimination in surgical practice, it might seem that such perfection of technique is practicable as to remove sepsis altogether from the possibilities of elective surgical procedures. This degree of perfection, however has not yet been attained; and it is doubtful if it ever will be. Suppuration and infection are frequent as complications and sequelæ of surgical operations, and hence no subject more important or practical can engage our attention.

It has been frequently stated that when suppuration supervenes in a wound, deliberately made by the surgeon, through healthy integuments, there has been some avoidable error in the operative technique. While such a standard is justified by bacteriologic demonstration, and should be held up by every conscientious surgeon as a criterion, it can scarcely be attained in practice. The truth of this observation is attested by a cursory glance over the current medical literature of the day. Clinical reports and society discussions abound with deaths attributed to "heart failure," "suppression of urine," "intestinal obstruction," "exhaustion," and other vague causes of death which are in reality due to sepsis. That suppuration in operation wounds is very common is generally known. Such unfortunate results are almost the rule in operations of emergency and in operations hastily carried out in private practice. Under these circumstances, however, no fair test is made of a thorough aseptic technique, and infection is due to the imperfect use of those resources known and applied by operative surgeons. But under conditions where all facilities are at hand, and where reasonable care is observed, suppuration and infection continue to occur in a considerable proportion of cases. In proof of this latter statement I would cite the words of a master in surgical pathology and operative methods: "I have made it a duty on my part to familiarize myself with the advances made in the technique of aseptic surgery, and have the good fortune to perform all my operations in two of the best hospitals in Chicago and in a fairly well equipped college clinic, and yet I am only too willing to confess that I never finish my day's work without seeing pus. I have a painful recollection of two amputations for carcinoma of the breast on private patients, in both of which every possible precaution was carried out, and yet to my utmost disappointment both of them died of the most virulent form of sepsis I ever encountered. To offset these cases I might refer to perhaps over two hundred similar operations in which, under much less rigid precautions, with few exceptions, faultless wound healing was obtained. I remember, too, a case of genu valgum in an adult treated by transcondyloid osteotomy under strict antiseptic precautions, where the operation was followed by violent suppurative osteomyelitis."

is and extensive necrosis which for a long time seriously threatened the limb and life of the patient. I am sure that I am not alone in relating such experiences.”*

Again, as proof that the most complete scientific equipment and environment for operative work, together with experienced and skilled operators and assistants, is not at present an absolute guarantee against sepsis, the following report of Dr. J. C. Clark, of the Gynecological Department of the Johns Hopkins Hospital, is cited: “I recall a hystero-myomectomy in a colored woman which was free from streptococci as shown by cultures taken from the interior of the uterus at the time of the operation. The evening of the day of operation the patient developed a temperature of 105 degrees F and within the next forty-eight hours died. Cultures from the blood and all of the organs showed myriads of streptococci. The infection was so virulent that the patient had been simply overwhelmed and died of acute toxic symptoms. The peritoneum showed little evidence of serious inflammation, as death had occurred before a marked reaction could be established.”†

During the past year, after an unbroken series of sixty-four abdominal sections without a death, I lost a patient after an operation for hysterectomy under identical circumstances to that above related by Dr. Clark. The case was altogether uncomplicated, and the operation presented no unusual difficulties. It was performed in the same operating room, with the same assistants, nurses, and with all the care and protection of the previous operations. A very careful investigation convinced me that the infection could have been conveyed by no other means than my hands.

It is the purpose of this paper, in view of these facts, to invite attention to the several parts of the modern aseptic surgical technique in order to determine the weak places and direct attention to re-enforcing the same. In the first part of this paper I have briefly presented the steps by which our present method of defense against bacterial invasion and its results was established; that methods of protection based upon these scientific principles of bacteriology have almost eliminated sepsis from the dangers of operations and revolutionized surgical practice is a demonstration of the accuracy and reliability of those principles. That in proportion to the increased precision born of experience with which surgeons work sepsis is lessened is an additional proof of the possibilities of obtaining immunity from sepsis. Whether or not absolute immunity will ever be attained is doubtful; but a nearer approach to complete immunity must be the aim of surgeons in all time.

In taking up the various parts of the surgical technique with a view to detecting its vulnerable points, we must first direct our attention to certain personal characteristics of the surgeon himself. In the first place it is indispensable that one doing surgery should

*Some of the Limits of the Art of Surgery, by Nicholas Senn, *Journal of American Medical Association*, May 9, 1906, p. 906.

†*American Journal of Obstetrics*, May, 1897 p. 718.

have some knowledge of the character and life history of the micro-organisms with which the surgeon has specially to deal. It will not suffice to have only a vague idea that germs exist which if conveyed into a wound will infect; the surgeon must know something of the habitat and mode of diffusion of these invisible forms of life. Fortunately bacteriologists have so simplified this subject that one can very easily provide himself with all essential knowledge relating to the pyogenic bacteria. He should especially attain such familiarity with the character of these micro-organisms as to realize that their spores offer much greater resistance to germicidal agents than the mother-plant. Moreover, the surgeon must have some high conception of cleanliness in order to establish proper defense against wound infection on the part of himself and of those associated with him. As long as the meaning of personal cleanliness must vary with the individual interpretation of the surgeon, so will any thing like absolute uniformity of results in surgical practice be impossible. And when we come to consider that these same varying features of individuality must obtain in assistants and nurses, we realize how complex and difficult is the apparently simple problem of surgical cleanliness. Indeed, for attaining anything near perfection in aseptic operative work the combined efforts of surgeon, assistants and nurses, endowed naturally with special capacities for individual cleanliness and mastery of details, are essential requisites.

With the improved facilities now at the command of operative surgeons in modern hospitals, protection from infection, in so far as relates to instruments, sponges and their substitutes, dressings, sutures and ligatures, together with operative utensils, such as basins, tables and other apparatus, may be guaranteed. With the usual methods of mechanical cleansing, followed by sterilization with boiling water or steam, it is a simple and easy process, if intelligently and faithfully applied, to render these materials free from the possibilities of infection. That it requires care, vigilance, intelligence, and faithful devotion to the work to establish and maintain such perfection of detail every one who has followed the work knows full well; but that in this part of the operative technique absolute immunity from sepsis can be secured there can be no doubt. That part of the operative technique, however, presenting the greatest difficulties relates to the disinfection of the surgeon's hands and those of his assistants.

That this has long been recognized I here quote the classic language of the late Thomas Keith, written twelve years ago. "It is, unfortunately, a melancholy story that ever since surgery began the most of the mischief was done by the surgeon himself. It was the willing and tender, though *unclean*, hand that carried the poison into the wounds."*

Here is undoubtedly the vulnerable point in our armour. When we remember that the surgeon's hands from the nature of things

*Contributions to the Surgical Treatment of Fibroid Tumors of the Uterus, Edinburgh, 1883.

must come daily in contact with pyogenic bacteria in the performance of his varied duties, we must recognize that here lies the greatest peril of wound infection. Moreover, since infection obtains by contact, the surgeon's hands are the most constant medium of germ transmission. It is daily demonstrated that boiling is absolutely destructive to all forms of bacterial life which could possibly infect a wound, but no method yet devised can with such assurance and certainty sterilize the surgeon's hands and the field of operation. It is to the perfection of this part of the operative technique that more care should be given and improved methods should be devised.

It is well known that various micro-organisms are so intimate in their relation to the skin that it is almost impossible to get rid of them. Investigations by competent observers have shown that no matter how rigid the disinfection of the patient's skin, and the cleansing of the operator's hands, the sterilization of instruments, and other precautions exercised, a certain number of wounds in which sutures are employed will suppurate. While these cases are exceptional, bacteriologic investigation demonstrates their possibility as a result of bacteria imbedded in the skin. Welch has described, under the name of *staphylococcus epidermidis albus*, a micrococcus which seems to be habitually present in the skin, both upon the surface and deep down in the Malpighian layer. He is of the opinion that this micro-organism may, under certain conditions, be a cause of skin-abscesses, regarding it as the same organism commonly present upon the skin and known as the *staphylococcus pyogenes albus* in an attenuated condition. These organisms are found to be capable of development when removed from the epidermis after the hands have been immersed in a strong solution of bichloride of mercury and other germicidal solutions. Whether or not this form of micrococci is ever the active means of infection after thorough scrubbing and disinfection of the hands is somewhat doubtful, but this observation has shown that the ordinary cleansing and disinfection of the skin with the means now in use are far from perfect. These facts give additional and indubitable evidence of the necessity of devising more perfect methods of skin disinfection.

The limits of this paper prevent that thorough consideration of this particular part of the aseptic surgical technique which its great importance demands, and it is only my purpose to treat a few common-place, but essential, requisites for hand cleansing which all concede to be necessary, but are so constantly and generally neglected. The subject of hand-disinfection in detail is now receiving, and must continue to receive, careful consideration.*

I would call attention to the necessity of a surgeon habitually engaged in operative work giving daily and constant attention to his hands, with a view to habitual cleanliness and freedom from abrasions and consequent foci of infection. I am aware that this is frequently mentioned in all treatises on the aseptic surgical technique, and am

*On the Disinfection of the Hands, by Robert F. Weir, M. D., N. Y. Medical Record, A, ril 3, 1897, p 469.

equally aware that it is not commonly observed. The surgeon's hand's should not be soft and tender; they should be accustomed to work, and consequently the skin should be firm and thereby equal to resisting slight injuries. The nails should be kept carefully trimmed, and the spaces thereabout thoroughly cleansed. After making vaginal and other examinations, wherein the hands are brought in contact with discharges, more than a mere hasty washing should be done. They should be thoroughly cleansed with warm water, soap and brush. If such facilities are not at hand at the moment, they should be obtained as quickly as possible after such examination. Gloves very quickly become infected and may remain indefinitely the medium of renewed infection. In preparing for an operation at least thirty minutes should be reserved for cleansing the hands. The same precautions as to time and detail should be observed in the preparation of the surfaces forming the field of operation. The surface of the body is constantly swarming with micro-organisms, the habits of the individual having much to do with their character. Pus-forming agents are completely protected by the fatty products of the sweat ducts, and the removal of these products along with dead epithelium is essential to anything like a thorough mechanical cleansing of the skin. The use of soap and hot water, thoroughly applied with brush, followed by a vigorous application of alcohol, ether or turpentine to remove the fatty products mentioned, should be a preparatory step to the application of chemical disinfection.

After numerous tests with various methods of disinfection for the hands, I have adopted the following which is commended by its simplicity as well as its efficiency:

The hands are first examined as to any abrasions or injuries, and the nails, if too long, carefully pared and the spaces about cleansed with a nail cleaner.

The arms, having been bared above the elbows, the hands and arms are scrubbed with a liberal quantity of green soap with hot water and a stiff brush for ten minutes.

After drying the hands and arms with a towel, the nails and underlying spaces are again carefully cleansed with the nail cleaner.

Ordinary mustard-flour mixed with warm sterilized water in the hands is applied with friction for five minutes and then washed off with warm sterilized water.

The hands are now thoroughly bathed in strong alcohol (80 per cent.)

After putting on an apron or gown, the hands are given a final washing in a stream of warm water running over the hands, brushing them again.

During the operation the tissues exposed should be handled as little as possible. By packing off areas of exposure with sterilized gauze and avoiding the handling of all parts which are to be left behind the danger of infection from the hands is much reduced.

The same principles are applied to the cleansing and disinfecting

of the patient's skin as are observed in preparing the surgeon's hands. General baths should be given for several days preceding operation whenever possible, and a general bath should closely precede the special preparation of the operative field. Thorough scrubbing of the operative field and adjacent folds of skin with hot water, soap and brush, using the razor upon hairy surfaces, should be applied two hours prior to the operation. Ether, alcohol or turpentine should be used to remove all fatty products from the skin, and finally a protecting pad of sterilized gauze should be secured by a bandage to protect the disinfected area. A final cleansing with alcohol and hot sterilized water should be applied on the operating table after the patient is anesthetized.

The perfection of the operative technique can not be attained through *preparation* of instruments, sponges, ligatures, sutures, hands of operator, of assistants, of nurses, and of field of operation *alone*. There remains the additional requirement of *maintaining throughout the operation* protection of all exposed parts from both direct and indirect routes of infection. There must be a special skill, acquired through training and self-control, which concentrates the operator's mind upon the work before him, and which assures a manual dexterity that holds all the operative field in hand, with directness of purpose and precision of action. No preparation of instruments and apparatus; of sutures, ligatures, and sponges; of hands and field, perfected by sterilization by heat and germicidal solutions, can secure perfection and uniformity in asepsis except it be supplemented by such operative skill as I have endeavored to indicate in this paragraph.

MANGANESE BINOXIDE.

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Among medicines having a specific action there is none which has given me more satisfaction than the binoxide of manganese. For many years I have prescribed it constantly for functional derangements of the uterus, and with a smaller percentage of failures than from any other drug with which I am acquainted.

It has been equally serviceable when the menses were too profuse and when they were too scanty; when the interval between the periods was too short, and when it was too long. In this respect there is no other term that describes its action as the word "corrective." In the absence of organic disease it seems to have the power, in a great many cases, of bringing the menstrual function back to the normal standard in whatever direction the deviation from that standard may have been. Again and again I have seen an habitual interval of three weeks lengthened to the normal twenty-eight days, or a usual duration of eight days, for example, reduced to four or five.

On the other hand irregular or abnormally long intervals have been brought to regular four-weekly periods, and a scanty flow to a satisfactory quantity.

In painful menstruation not dependent upon anatomical conditions I have come to rely with great confidence upon the relief to be obtained from the binoxide. Beginning about four days before the expected period, and continuing until the flow is fully established, it will generally give a measure of relief for that time. It may, however, seem to be little or no benefit on the first occasion, but if repeated the next month, an amelioration may be quite confidently predicted, and by perseverance during three or four periods, complete and permanent relief is usually obtained.

The headache of a burning character, and limited to the vertex, which so frequently has a uterine origin, is often promptly relieved by two or three doses of the drug, administered at intervals of two or three hours, and this even when it occurs during the intervals of menstruation.

Finally, in the only instance in which I have employed the binoxide for this purpose it gives decided relief to the hot flashes attending the menopause. If the patient takes a pill of two grains at bedtime, she passes a fairly comfortable night, whereas, if the pill is omitted she wakes half a dozen times to find herself dripping with perspiration. I have, heretofore, depended upon one of the nitrites in such cases, but there are persons who cannot bear them even in the smallest doses, and in such cases I shall hereafter make trial of the manganese.

My experience with the drug convinces me that it controls in a marked degree the nervous disturbances emanating from the uterus. The effect is often too prompt to be attributable to a merely tonic action upon the general system, and I am forced to believe that it has a peculiar specific relation to the parts involved.

The dose is two grains three times a day, but as it is absolutely without unpleasant effects, it may be given in much larger quantity and at much shorter intervals.

For its effect upon the periods it should be given for three or four days before the expected time and continued nearly or quite through the period, this being repeated for several consecutive months.

THE CONTINUITY OF LIFE.*

BY RUDOLPH VON VIRCHOW, M. D., BERLIN.

To treat a question admitting of no formal answer is difficult indeed, and I am well aware of the breakers ahead; still, the fault is not entirely mine, and I believe I can be permitted a few words of excuse: The organization committee of the congress asked me to speak; I might have resisted the request of this "executive"

*Address at the first general session of the Twelfth International Medical Congress, Moscow, 1897.

committee had I not, at the same time, had the desire to explain certain theories. For, the time of meeting of the congress is at a particularly solemn moment—a few years more and it will be the twentieth century. While it is little likely that the twentieth century will bring forth anything which has not yet existed, it is none the less certain that we can not help expecting much from it. What, after all, has produced the century which is now at its close? This question has often been put to me and I now desire to enlarge upon the true achievement of the nineteenth century.

I freely confess that the seeking of the point at which medicine begins to form a part of biology has been one of my fads; hence have I devoted the last days of my life to establish and spread the idea that pathology should be considered a branch of biology. For a man to be ill, he must first live!

This is natural, but the delicate point is, in order to realize it in a precise manner, how to establish the relations uniting life to disease. Actually, an old man, I am desirous that the next century should strive to sound the nature of this relationship; it is little likely that I shall see this new century, but what care I? For what I wish above all is that we may have the joy and pride to see pathology become a biologic science. It will not do to plunge too deeply into specialty; but, on the contrary, to look for positive progress in universality alone, as well for the world in general as for medicine in particular.

The problem of our century has been, precisely, to attain this universality.

One hundred years ago medicine almost exhausted itself in creating systems, classifications, in making fruitless a priori speculations; the wise then believed it sufficient to reflect and to reason in order to know; and this tendency troubled all minds to such an extent that dreamers and charlatans alone profited by it. They know how to fish in troubled waters, construct formulas, gather in the faithful and found schools. This is so true and so natural that it is easy to find examples about us and to behold the fanaticisms engendered by them.

This tendency, then, preponderated in the beginning of the century; it is sufficient to recollect the interminable triumphs of animal magnetism, as it traveled from Vienna to Paris; or again, to consider the numerous stages which have led from animal magnetism to hypnotism. Study animal magnetism if you will, but a most extreme reserve can not be too much advised, for we have made most instructive experiences on that score. Altenstein, one of the least prejudiced ministers we have had in Germany, was, under Hardenburg's influence, a fervid adherent of magnetism. One fine day it was proposed to found a chair of animal magnetism in Berlin. Altenstein founded two at the University. And you must not think that this is ancient history. This fact, which it makes us blush to recall, occurred almost in our days.

Modern medicine, that which I specially desire to see transformed

into a biologic science, took on its principal characteristics in the middle ages, an epoch which did not concern itself at all with life. At the London congress, desirous of gathering partisans in favor of the union of Pathology and Biology, I showed when and how the notion of life had first occupied the scientific thoughts of humanity; it was at the time of the Renaissance and the Reformation, in that century when, from so many standpoints, humanity threw off its shackles. And the first who then concerned himself with life was an adventurer, it is true, but an adventurer of genius, Paracelsus, a contemporary of Vesalius, the celebrated anatomist; he asked himself what was life and concluded that it manifested itself in two distinct forms: one for the whole individual, *vita communis*, and one for each part constituting the individual, *vita propria*.

A very marked distinction was established between these two forms, and it was endeavored to elucidate the relations between these two manifestations of life, a conception which was to receive its first scientific basis about two hundred years ago. Harvey, in fact, brought medicine back to the domain of reality by his discovery of the circulation; before him, it was thought that the arteries were not blood but air vessels, and when blood was found in the arteries the phenomenon was explained by an error *laucia*; Harvey, however, could not account for the passage of blood from the arteries to the veins, and it was necessary to invoke the porosity of tissues until Malpighi discovered capillary circulation. He first conceived the idea of looking at the interdigital membrane of a frog under the microscope and perceived the capillaries allowing the blood to pass from the arteries to the veins. He at the same time recognized the blood corpuscles and the filaments of fibrin; on that day, biologic medicine was born.

I merely wish, by this example, to show the essential difference between our modern school and the ancient speculative school.

At a time when mechanics and mathematics had realized great progress, the activity of the human body was considered as purely muscular, and, since chemistry has developed so much power, all biologic theories have been renewed in the same direction. Very recently, on the other hand, serum therapy has injected new life into the ancient humoral doctrines. The study of serum therapy will assuredly be most instructive and most fruitful if we are fortunate enough to resist what is too seductive: in thinking only of serums there is the risk of losing the truly scientific path. This is, perhaps, the last opportunity afforded me to speak at such an important meeting; hence, an aged man, I may hope to be pardoned for whatever my words may have of too exclusive and too personal.

If during this century our minds have accomplished their emancipation, our object should remain the emancipation of medicine as well, by viewing it from a purely biologic standpoint.

Whence comes life? What are its origin and essence?

This question was to lead men to the grossest errors; they believed

it could be solved by means of formulas, and, for instance, one of the solutions had received the name of spontaneous generation, in the supposition that live beings could in some way be born *de novo*. Thus, intestinal worms were known which produced no eggs, yet multiplied indefinitely; but the alternating generations and method of reproduction of these animals finally became known. Speculation and reflection for a thousand years would never have found the solution which exact researches alone could yield; fantastic speculation never finds the truth.

The gradual expansion of the use of the microscope gave birth to a new phase in the march of medicine toward biology, and the first to recommend with conviction the use of this wonderful instrument was no other but Ehrenberg, of Berlin. The extraordinarily penetrating researches of Pasteur finally demonstrated that the infinitely small themselves possessed germs, and that there could be no question of spontaneous generation even with them.

Besides, how are new parts generated in our own body? Here, also, it was thought that growth resulted from a spontaneous generation; but there again it has been possible, little by little, to eliminate this notion as to the generation of primitive elements; just as, in order that a being be born, it is necessary that an antecedent being should have given him life, so are the isolated cells subject to this law of hereditary succession. The dogma of the continuity of life must be an article of faith for each one of us, for there is to-day no more origin nor source of life; it may be that these sources existed once upon a time, but we can find no trace of them at present, and we can be conscious only of the continuity of life.

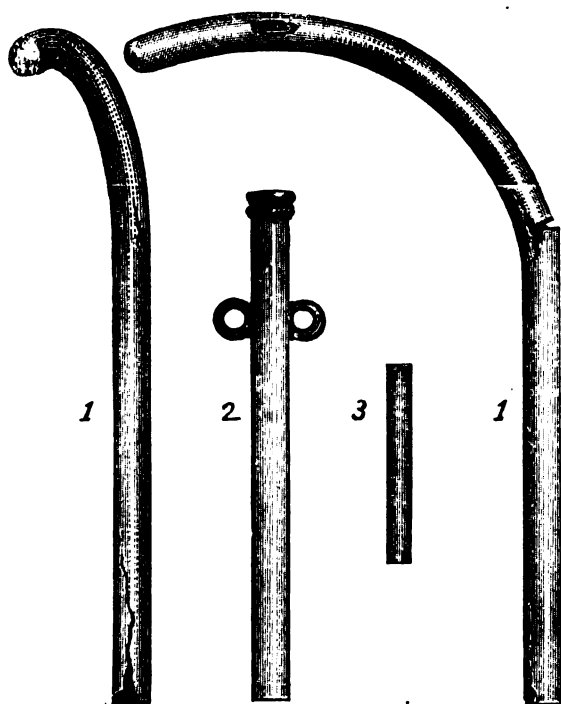
On this basis rests our knowledge: there can be no disease, there can be no new growth unless primarily there be a living cell; it must exist and proliferate under the influence of an irritation, while this irritation may be due to bacteria or to any other noxious cause. Such hereditary succession of life was made known to us by the microscope. Darwinism owes its existence altogether to this doctrine, for it is nothing else but the continuity of cellular life applied to much more complex organisms.

I have sought to indicate briefly the principal points of this conception, and it is not difficult to find proofs of it everywhere; I simply wish that the next century, or, perhaps, even the last years of the closing one, may witness the establishment forever of this principle of the continuity of life. The systems of men are changeable and variable, like all which is human; yet, on the other hand, men, beasts and plants still survive, notwithstanding all the obstacles opposing their existence; likewise our contemporary biologic science will remain a durable and inalienable conquest.—*New Orleans Medical and Surgical Journal*.

THE REMOVAL OF A PIECE OF CATHETER FROM THE BLADDER.*

By W. L. CHAMPION, Atlanta, Ga.

Figure number one in the accompanying cut is a correct likeness of a piece of metal catheter I removed from the bladder of a patient on November 2nd. The patient was a man about forty years of age



who had been suffering some ten or twelve years with cystitis. On account of urethral spasm he was unable to empty his bladder at night without the use of catheter. The delapidated looking instrument as represented here had been broken sometime before, and the patient had connected the pieces with a short piece of reed. Fig. 3. He had been using the instrument in this condition for a year or more. On the day of the accident he drew his urine as usual, but on attempting to withdraw the catheter the

lower portion remained in the bladder and deep urethra. When I arrived at the patients home the catheter had been in the bladder five or six hours. An examination was made and the upper end of the broken catheter could be felt at the central point of the perineum or bulbous portion of the urethra. I had with me a pair of straight urethral forceps nine inches in length. After several attempts I succeeded in removing the broken piece through the urethra. As you see in the accompanying cut the length of the piece removed is about four inches, a portion of it being within the bladder. In the cut can be seen the upper ragged end of the piece left in the bladder. On withdrawing it these sharp edges cut the urethra. If I had known at the time the end of the instrument was in such condition, I think I would have done a perineal section without attempting removal through the urethra. But as luck would have it the urethra was not torn enough to do any serious damage. I suppose there was a tablespoonful of blood to ooze from the urethra after removing the piece of catheter. There was also a slight hemorrhage for several days with some pain and soreness, but at this date the patient is well as he was before the accident.

*Reported before the Atlanta Society of Medicine November 16.

PUERPERAL INFECTION,

BY ST. JOSEPH B. GRAHAM, M. D.,

Savannah, Ga.

MR. CHAIRMAN AND GENTLEMEN: If this paper were exhaustively written it would consume more time than can just at present be given in writing it, and more than you can perhaps afford in listening to it when read. Therefore, an attempt only is made to touch upon what we consider the most important under the scope of the paper.

The causes of puerperal infection are various and can be classified as follows: Infection from streptococcus pyogenes, usual cause; staphylococcus pyogenes aureus and albus; Klebs-Löffler bacillus of diphtheria; bacillus coli communis; Gonococcus of Niesser of gonorrhoea, and perhaps the bacillus of malignant oedema (vibrio septique Pasteur).

The manner or way of introduction of the micro-organisms is two-fold: either from the patients themselves or their dressings, or, the most usual, from the hands, instruments or dressings of the physician or nurse.

It seems quite out of place to discuss at length all of these well-known sources.

The leading infection from patients themselves might be further elaborated by mention of the role played by the birth of dead and macerated foeti, retained placenta, in part or whole, accessory growths of the placenta, and spurious placenta, all of which favors infection by furnishing a favorable soil for the growth and multiplication of micro-organisms.

It is plain that in order to have puerperal infection certain of these lower organisms must be present, and they gain admission either through a solution of continuity, small or large, or through the puerperal endometrium. The virulence of these organisms varies much, due to differences in temperature, source and growth, and the infection varies with this condition, as well as with the number of microbes present, and the individual susceptibility of the patient.

The pathology of puerperal infection depends upon the species of organism producing the infection. In ordinary cases the infection is due to the streptococcus pyogenes, and the most easily noted change is that of the blood even before and especially after death. It is thick and black, is acid in reaction, and decomposes quickly. Streptococci are found in it at times in large numbers, as well as in other organs and tissues of the body. The leucocytes and red corpuscles are disintegrated, partly by the organisms themselves, as well as by the toxine elaborated by them. In consequence of this change in the blood and in the blood vessels, numerous hemorrhagic foci take place in the internal organs. In the intestines we may find enteritis or ileo-colitis, in the heart pericarditis, endo-carditis, in the kidneys an acute inflammatory catarrhal condition, in the uterus metritis, in the veins phlebitis. Changes in the internal organs

are not however constant. When the infection is a mixed one, we have a pyemic condition combined with it where metastatic abscesses are present through the different tissues and organs of the body.

Through microscope No. 1 you will see a section made from the broad ligament after death containing numerous staphylococci. In No. 2 you will see section of the heart muscle containing streptococci.

Both of these were prepared by the author.

TREATMENT.

Of first and greatest importance is the preventive treatment—its causes usually being under our control. We must begin prophylaxis when we can see any indication for the same at any time before the period of labor. Any condition or disease, local or constitutional, that lowers the vitality of the patient or furnishes a nidus for bacteria certainly predisposes to infection, and we may include auto-intoxication in the list. These should be met by proper therapeutic, surgical and hygienic measures and if possible relieved or cured.

Any abnormal secretion from the vagina calls for proper treatment as soon as recognized.

We often find a leucorrhea due solely to systemic disturbance, which resists, of course, local treatment, but is readily cured when the real cause is recognized. In chronic malarial toxæmia the author has often seen this condition, which readily yields to proper doses of iron, quinine and arsenic.

Of course if gonorrhœa (recognized by gonococci) is present, treatment will at once be resorted to. In health the vagina secretes a mucous and cultivates saphrophytic bacilli, which render it immune to the invasion and harmful influences of pathogenic bacteria; therefore, in health preliminary antiseptic douches are not only uncalled for but are harmful, in that they upset or destroy the provisions of nature.

As an antiseptic for the hands the writer prefers a 2 or 3 per cent. solution of formalin (a 40 per cent. solution of formaldehyde) gained by the incomplete oxidation of methyl alcohol dissolved in water. The nails are first well cleaned (to prevent what a witty friend a few days ago remarked, making cultures from the finger nails before visiting the case to decide what kind of serum to use). No matter how clean they may appear, a new or sterilized nail brush and sand soap is used for the fingers, hands and arms, afterwards washed in alcohol and thoroughly washed and soaked in the formalin solution. It is needless to say that nothing unsterilized should be touched after the cleansing. A sterilized gown should be worn by physician and nurse. Everything should be gotten in readiness beforehand. The writer begs to show you here a little sterilizer for instruments when needed, of his own evolution, which is compact, cheap, easy to transport and fulfills the purpose for which it is intended. With the

small alcohol stoves the water will be boiling in five minutes; a 2 per cent. soda solution may be used and formalin may be added if desired. Make as few vaginal examinations as possible and wash the hands in formalin solution after each examination, and when a lubricant is needed use sterilized cotton seed oil or vaseline.

The writer had the good fortune to serve a few years in the frontier service as physician, being at a post among the Sioux Indians, and there noted the extreme rarity of puerperal infection among them, despite the filth and unhygienic condition of the surroundings of puerperal women. They never permit the introduction of the finger for examination or the hand for aid, except in the most extreme cases, and these cases were of such a nature that death frequently came before delivery. In the few cases of infection the wauseca pejutawicasa (the white medicine man) had been in attendance.

The patient's external genitals should be thoroughly scrubbed. Most of our patients do not neglect their body bath. Where they do it is well to remind them of its usefulness, aside from common cleanliness. The woman in and after labor should be treated with the same regard for asepticism and surgical cleanliness as we would use in the most extensive operation wound of our own making, where the surface was previously free from infection.

Unless the hands have been in the uterus, which is to be avoided if possible, by Créde's method of expression, or there is some indication for its use, the writer would not resort to intra-uterine douches. When labor and the soft parts are normal and the rules of asepticism have been rigidly adhered to, vaginal douches can do no good.

The treatment of infection should be local and constitutional, surgical and medical, influenced of course by the variety of micro-organisms producing the condition. The parts should be examined as far as possible by the eye to determine the focus and in a measure the classification of infection, and upon the information gained the treatment will depend. For local disinfection the writer prefers a 1 to 4 per cent. solution of formalin to any other antiseptic known. Where the point of infection is in the uterus it must be decided whether it is sapræmic or septicemic. Clearing and cleaning out is indicated; the surgically clean finger, dull curette or sharp curette may be used (each has its advocates and disadvantages), followed by prolonged douching with or without active germicidal agents. Here again the writer prefers formalin solution. It is non-toxic, but very slightly irritating in proper strength, and as far as germicidal properties are concerned, heads the list.

If remains of necrosed tissue are not present curetting will accomplish nothing.

If the case is seen early, before septic absorption and migration of bacteria has taken place to any very great extent, the writer prefers to use a blunt dilator and irrigator combined, which I here beg to present to you. This, after sterilization, is introduced and opened the irrigating portion having been filled with liquid to prevent the introduction of air. It is attached to an irrigating bottle or funnel

and a solution of formalin allowed to flow in, while the dilator is moved in every possible direction. This may be maintained as long as desired, being careful not to have the solution too strong and the hydrostatic pressure too great by too high an elevation of the container. The temperature afterwards should be the guide as to the length of time and value of the washing out. Formaldehyde or iodoform gauze may be used to induce drainage and act as germicidal agents, or as iodoform does to prevent the formation of toxins. An original plan has presented itself to the writer, but which an opportunity has not offered for use. It is the conveying of formaldehyde gas combined with vapor of alcohol into the uterine cavity through a suitable tube uterine applicator. Theoretically, it should prove of great value; practically, we do not know what it will do. At any rate it is non-toxic to the patient. Steam at 100 to 115C. has been used in this manner with reported good results.

The constitutional treatment is modified in a measure by the kind of infection present.

If diphtheritic, due to Klebs-Löffler bacilli, anti-diphtheria serum should be used. If, as more often happens, the pseudo-membranous angina and the poisoning is due to streptococcus pyogenes, anti-streptococcus serum is indicated, that of Marmorek probably being the most noted, but many serums made in our own country are as good.

Ten cases are reported of streptococcus phlegmon where the swelling of lymphangitis and lymphadenitis quickly disappeared after the use of serum.* The serum treatment, however, seems not to have yet reached that high grade of healing power to which it is thought and hoped it will later rise.

The indications are to sustain by proper remedial agents and stimulants, judiciously employed, the patient's vitality until the vis medicatrix naturæ sufficiently asserts itself. The writer believes in pushing alcoholic stimulants.

With the report of one case I beg to close my too brief remarks. Patient, age 39, delivered at full time of twins, dead three or four weeks in utero, and attached to one placenta, which came away entire; no laceration of uterus or soft parts. Next day lochia, apparently normal. On fourth day, at 6 A. M., severe chill, followed by temperature of 105, pulse 148, stupor. Used dilator as above described and irrigated with formalin solution for one hour. A few small schreds came away, but nothing else. Temperature sank to 103 in the afternoon, when irrigation was again resorted to. Temperature at 9 P. M. 102. Irrigation again next day; temperature 102, in afternoon 101; irrigation. Temperature at 9 P. M., 100. Morning, irrigation; temperature 100½; afternoon temperature 100½; irrigation; night temperature normal. Irrigation next morning. Patient bright, appetite returning, and went on to recovery.

Blood examination showed no plasmodii but excess of leucocytes. Calomel in small doses and quinine was given internally.

*Dieudonne. Schutzimpfung and serum therapie. Leipzig, 1895.

Georgia Journal of Medicine and Surgery.

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SECRETARIES OF MEDICAL SOCIETIES will do us a favor by keeping us informed of dates of meetings of same, etc.

To Our Readers.

It is not without some pride, a natural sense of *something* achieved, that we issue this, the first number of our second volume. To our readers and critics whoever they may be, we leave the comparison between our first number and this issue, confident that in part at least, we have borne out the promises of our valedictory.

The general impression prevails that the field of medical journalism is over-crowded. This may be true of the northern and middle states, but certainly not of the southernmost Atlantic states, as shown by our experience in the last six months. To the medical profession of these states our sincere thanks are due for the kindly reception of this new venture and the cordial assistance we have everywhere received, but to none do we owe, nor more gratefully give, our sincerest thanks, than to the gentlemen who kindly consented to aid us by acting as our collaborators. We print elsewhere a list of these names, a perusal of which we recommend to our readers. In all sincerity we believe that there is no journal published in the United States, which can show a stronger or more renowned staff of collaborators. Encouraged and assisted by these gentlemen, we shall continue in our undivided efforts to improve this Journal, and make it what our ambition desires, the cleanest, the very *best* medical journal in our country. While we aim for this

highest of standards, we particularly aim to make it *the* exponent of southern medicine, to encourage and assist in the development of scientific study and research in the South, and assist in the development and growth of scientific medicine in its highest sense.

TEMPORA MUTANTUR ET NOS MUTAMUR CUM ILLIS.

There is a medical society in Savannah, the Georgia Medical Society, which is one of the oldest and most respectable societies in this country. It also has a constitution and by-laws, which give evidence of being nearly as old as the society. It has often been proposed to change these by-laws, and a year or two ago the younger element managed to push through the appointment of a committee to revise them, but it has never been allowed to report.

We desire to call particular attention to one feature only, of these by-laws, and it is one which owing to changed circumstances, increased growth of the city and enormous growth of the medical population, requires attention.

What we object to is a law which requires that every man who purports practicing medicine in Savannah shall, within six months apply for membership in the Georgia Medical Society, failing to do which no member shall consult with him; again, failing of election no member shall consult with him.

Such a rule might have been all right when Savannah was a small town and only had ten to twenty physicians, but now that we have a state law for the license to practice, a large city with to exceed seventy-five regular practitioners, such a rule becomes practically a boycotting order.

Careful investigation leads us to express the opinion that the judicial counsel of the American Medical Association would pronounce any such law unethical, not to mention any of its other qualities and possibilities of evil. Further than this, a good attorney has recently expressed the opinion that should a case ever arise where a physician, failing of election, should find himself thereby debarred from consultation with members who might desire to do so, but dared not, owing to that rule and the fear of its application to themselves, such a man would be able to recover heavy damages from the society on several counts.

We should be pleased to see this case tested and more than pleased to see so arbitrary and demagogic a law wiped out of existence. If a society is not strong enough to live except by force and boycott, let it die.

We call the attention of our readers to the latest accession to the noble list of our collaborators, Theophilus Parvin. We shall add no comments, for the case requires none excepting congratulations for the Journal and thanks to the illustrious physician.

EDITOR'S TABLE,

Among the few books of recent years which have made a profound impression upon medical men, one of the most notable is Abraham Jacobi's "Therapeutics of Infancy." From it could be prepared a book of "Aphorisms" to be committed to memory by every student, as in olden times were the aphorisms of Hippocrates.

Among many remarks characteristic of Jacobi we cull the following as good examples:

"The final termination of the case and the welfare of the patient are the main objects in view, and the choice between a badly tasting medicine and a fine looking funeral ought not to be difficult."

"Altogether, it has always appeared to me most satisfactory to treat children. They are truthful, unsophisticated; they are what they appear, and they appear what they are. In their pathology and therapeutics there is no mysticism, no faith-cure, no spiritism, nor any other diabolism."

"Neither a deluge nor an absence of drugs make a physician, nor do they contribute, when by themselves alone, to the welfare of a single individual or the community."

So it goes page after page—every line a gem. We will close with one more quotation:

"The treatment of diarrhoeal diseases depends in part on the locality, in part on the etiology of the individual affection. No 'specific' treatment will ever do good, not even the modernized stomach-pump sticking conceitedly out of the coat pocket of the delighted medical man who appears eager to emulate the midwife of our mothers' with the rectal syringe under her arm as her emblem. Thus, indeed, unless it be the intention to fill these pages with prescriptions, to be copied thoughtlessly, nothing can be permitted here except general indication for treatment."

"My readers will have noticed that I have carefully abstained from prescription writing in these papers. They are written for my peers, and not for the very beginner who looks for the most advanced accomplishment in a formula, nor for those who like to be supplied with their medical brains by the loquacious agent of the manufacturer furnishing diagnosis, indications, formula, and medicine for doctors and mankind, from the ubiquitous satchel."

The Atlanta Medical and Surgical Journal in commenting upon the prize offered by the Medical Society of Virginia for a history of medicine and surgery in Virginia, very pertinently asks the question: "Why can we not get a history of medicine and surgery in Georgia in a similar manner?" Why not, indeed; never was more reasonable question asked. Our medical history is a glorious one; by all means let us have it. The editor of the Atlanta Journal has already given us a resumé of a history of medicine in this State and a most excellent work it is. We will join hands with the Atlanta Journal in urging this matter at the next State meeting, and meanwhile let it be discussed in all the local societies.

There will appear this month a new medical journal—a weekly, to be known as the Philadelphia Medical Journal, published in Philadelphia, and under the experienced and fearless editorship of Dr. Geo. M. Gould. We remember the days not so long ago when the “Medical News,” was under his leadership and with what pleasure we welcomed it and its bold editorials, waging open warfare against every form of quackery and medical humbug: the editorials written by Gould, a master of words and style, have not been equalled in medical journalism since he left the “News,” but we anticipate a return to the arena of this “preux chevalier sans peur et sans reproche.”

Under his guidance and assisted by the profession in Philadelphia, the “Philadelphia Medical Journal” will at once take a most prominent place in American medical journalism, and probably be the champion in the list of aggressors against quackery and the many evils besetting our profession.”—VALE.

We are pleased to note the enterprise and success of our friend “The Laryngoscope,” which, with this month’s issue will be published simultaneously in St. Louis and in Bristol, England. This is not only a rare compliment to that excellent journal and its editors, but a compliment to American medicine, more especially the trio of specialties represented in its pages. The profession in England will learn much from its valuable pages, and we seize this opportunity to ask any of our readers interested in nose and throat work, who may not be subscribers to the Laryngoscope, to send at once for a sample copy, and they will be convinced that they should be subscribers.

We desire to call the attention of those interested in the construction, management or equipment of hospitals, that the Albany Medical Annals, of Albany, N. Y., one of our most valued exchanges, which will issue in February an extra number devoted to hospital construction and administration, in which six papers by leading authorities on the subject will be published. Non-subscribers can obtain copies of the “Annals” by addressing as above and sending 25 cents. We advise all who may be interested, to seize this opportunity of obtaining very valuable information at practically the cost of printing.

We notice in two recent numbers of the New York Medical Journal, a paper written by a Canadian medical gentleman, who besides enjoying the inexpressible blessing of four initials before his name, adds to it a tail (a sort of a balance, we presume) as follows: M. D. C. M., L. M. and L. K. Q. K. C. P. I. Why does not this much initialed gentleman add the whole alphabet, or would he consider that, as Mark Twain would say, “over description”? Thank God that there is one form of anglo-mania not yet seized upon in these United States, and that is the initial mania. May it never come to add another to the burdens and vexations of a medical editor’s mind. Just imagine Chicago and New York having an “initial” match! We will bet on Chicago.

BOOK REVIEWS.

Moral Principles and Medical Practice.—The Basis of Medical Jurisprudence. By Rev. Charles Coppens, S. J., Professor of Medical Jurisprudence in the John A. Creighton Medical College, Omaha, etc., etc. Benzinger Bros., New York, Cincinnati, Chicago: 1897.

It seems that in the medical college in Omaha which bears the euphonious name of John A. Creighton, there are two separate chairs covering the field of so-called Medical Jurisprudence, one styled Medical Law, a chair filled by a gentleman of the legal persuasion, the other Medical Jurisprudence, or rather Ethics and Moral Principles of Medical Practice, occupied by the author of the work, whose lectures have been arranged for publication, have received the sanction of the high officers of the Society of Jesus, of which our author is a member, and the ground for publication based, as we find in the preface, on the need of supplying "some chapters imperatively demanded by science for the thorough treatment of this important subject." One chapter is devoted to craniotomy, one to abortion, one to the views of scientists and sciolists, one to venereal excesses, one to the Physician's Professional Rights and Duties, two to Insanity, and one to Hypnotism and the Border-Land of Science. The book is well written, by one versed in the art, a man evidently of learning and much skill in teaching. That which it teaches is not science, but science warped to fit a certain religious dogma. It is greatly to be regretted that such views should be allowed to enter into the teachings of a medical school.

The author proves to his own satisfaction that craniotomy is never justifiable: he quotes with approval, (page 55), that the mortality of Caesarian section to the mother "is not much higher than that which attends craniotomy," and this from the pen of a Dr. W. H. Parish, writing in the *American Ecclesiastical Review*. The author says: "We have established, on the clearest principles of Ethics and Jurisprudence, that it is never allowed directly to kill a child as a means to save its mother's life," (referring here to the child in utero).

In regard to this reverend gentleman's views on abortion, the following quotation will be sufficient:

"Suppose, then, what is said to be a real case of occasional recurrence in obstetrical practice, namely, that a pregnant mother is seized with violent and unceasing attacks of vomiting, so that she must die if the vomiting be not stopped; and you, as well as the consulting physician called in, can discover no means of relieving the vomiting except by procuring an abortion, by relieving the womb of its living burden." "Are you justified in using that means? You cannot. If once you grant that grave reasons would justify abortion, there is no telling where you will stop in your career of crime." Comment is unnecessary.

The author quotes approvingly a lecture of Dr. L. Charles Boisliniere of St. Louis, in which we find the following extraordinary statement relative to Caeserean section: "Rousset, in 1581, performed it a great many times, always successfully; so that, Scipio Murunia affirms, it was as common in France during that epoch as blood letting was in Italy."

We have before us the work of Scipio Mercurii (the Murunia mentioned above correctly called Mercurii) entitled *La Commare Oriccoglitrice*; Venice, 1601, and find that no such extravagant assertion is made by the author, nor does he in any way pretend to believe that Rousset's Caesarian sections were "always successful." The approval and quotation of any such loose statements to a class of medical students is calculated to do more harm than good.

The author cannot afford to lose this opportunity to give a blow below the belt at evolutionists. "Besides a multitude of others, Lord Salisbury for one, has clearly shown of late that the school of agnostic evolutionists is coming to grief; it has had its short day, and it is now setting below the horizon of ignominy and subsequent oblivion." Lord Salisbury is just about as correct in his views of this matter as he was of the Venezuela question.

According to the author, "a host of diseases, such as tuberculosis, diabetes, epilepsy, etc., are some of the effects of venereal excesses" (page 105). This brief quotation will serve as a sample of the value to be attached to the author's views on venereal excesses, as if the bare truth were not enough. Another sample quotation, illustrating the profundity of his knowledge, and the kind of stuff which the deluded youths who imbibe of the fountain of knowledge at the John A. Creighton medical college, is the following, quoted verbatim from from page 112: "For in the allopathic school of medicine in which you are being educated, the leading principle is: 'contraries are cured by contraries'" (*contraria contrariis curantur*.)

The author goes on to state in his chapter on venereal excesses that a public and most deplorable calamity has descended of late on our own vigorous nation, threatening extinction in the not distant future, and that is the alleged increase of abortion and preventives of conception, as chief causes, threatening the extinction of the American race. He goes on to state, and also quotes with warm approval statements of others to the effect that "it is the protestant or agnostic American who too often uses one of the preventives of conception."

"It should be stated that believers in the Roman Catholic faith never resort to such practices; the strictly Americans are almost alone guilty of such crimes," and further he quotes a Dr. Lindley of Los Angeles, Cal., as saying on this same subject, "it is the acknowledged conviction of the medical profession generally, confirmed by the last U. S. census, and in fact not questioned, to my knowledge, by any weighty authority."

We are not here to defend protestants or agnostics, for religious matters are not fit subjects to discuss in medical books or jour-

nals, but we cannot refrain from calling the attention of the author to the very unfortunate state of affairs prevailing in catholic France and Italy in regard to infanticide, abortion, prevention of conception and the like. In Rome, under the very eyes of the Pope, and all catholics, we venture the opinion based upon many years of residence in that city, and intimate acquaintance with its people, that these crimes are every bit as common as in the most protestant cities of America.

Such loose statements, purporting to be facts; such bias, cloaked by religion, detract, nay, entirely destroy all value to any utterances made by the author. We deprecate the mixing of religious tenets with medical teaching as destroying the one element most essential to science—impersonality—truth in the abstract. We have no hesitation in stating that this book, to medical men or students, is worthless from whatever standpoint it be judged.

Diseases of the Stomach.—By John C. Hemmeter, M. B., M. D., Ph D., Clinical Professor of Medicine at the Baltimore Medical College, etc. Philadelphia, 1897. P. Blakiston, Son & Co.

This is the magnum opus of medical scholarship in America for the year just closing. That a work of such magnitude and thoroughness should issue from the pen of an American author, is a matter for special congratulation; for here there are no such rewards as are obtained abroad; professorships do not pay a man anywhere near enough to live on, and, when superannuated, professors are dropped without a pension. If a German author, Ewald and others included, had ever written a book as good as the one now before us, every wire would be pulled to give the deserving author a more remunerative chair, some title, and a huge lot of puffing from the medical press. This book stands to-day without its equal in England, Germany, France or Italy, and in a special line, too, where the French and German school are each claiming the best in the field.

This work of Hemmeter's differs from all other works on the subject because it contains a number of entirely new methods of diagnosis, it gives credit to American clinicians in this special department, and shows in every way a vast deal of original personal work of unquestioned value.

He has treated the subject systematically and concisely, giving first the special anatomy and physiology of the digestive organs, the methods of diagnosis and general therapy, including dietetics; following this with a methodical discussion of the various diseases affecting the stomach with their symptomatology, diagnosis, prognosis pathology and treatment. There are many illustrations—largely original. We notice with pleasure that particular attention has been devoted to diet suitable to the American palate. The author has diet tables of his own, but gives a great number of others as well: We

notice that wines, Tokay or Rhenish, are advised; this we do not believe wise with most Americans. There is something about the climate and people over here that renders wine objectionable to most people. That it acts on the nervous system differently in America than in Europe is a matter beyond question, and the very large majority of practitioners will find that where alcoholic or vinous stimulants are indicated, whiskey diluted with water acts better than Tokay or Rhine wines, which we find too hard to get in small cities and the country, and too expensive for most people even in cities.

The chapter on mineral springs is timely and full of useful information, while that on "Important Medicinal Agents in Gastric Therapy" is of great value.

There is a very able discussion (Chapter iii, Part ii) on the influence of gastric diseases upon other organs and on metabolism, with most of which we can agree, the exception being in relation to the effect of malaria upon gastric diseases. Hemmeter says malaria "may even be an underlying cause (of gastric disease)": that is putting it too mildly, while further on he states that "malaria does not, as a rule, affect the secretion or motility, except in the various forms of pernicious malarial fever." This is correct for the North, but does not state the case correctly for us down here. We are all familiar with gastric complications in nearly every case of malaria. We have before stated it as our opinion that what we very much need in the Southern states is a Practice of Medicine (and surgery, too, for that matter) from a Southern standpoint. In the French there is an excellent treatise "*Traite Clinique des Maladies des Pays Chauds*" by Dr. A. Corre, and it is something on that order that we *must* have.

After the treatment of each special subject in this volume, the author has given a full bibliography, which adds immensely to the value of this work for reference, as does also the very copious and accurate index, and list of authors. On page 770, there is given the author's synopsis of the scheme for examining stomach patients at the Maryland General Hospital; it is an excellent scheme and will undoubtedly be widely copied.

We think this work is the best on the subject in our language, and being familiar with the most recent French and German works, we still feel inclined to consider it *the* best in *any* language. We do this advisedly, and without hesitation: to our readers we warmly commend the book, as no one could read the book without looking at the subject treated from a clearer point of view, diagnosing and treating more intelligently. For either reference or information on all new "points" it is a necessary work to the physician who would keep abreast of the times.

P. Blakiston, Son & Co. of Philadelphia, have done full credit to this book. The illustrations and press work cannot be too highly praised.

Manual on Gynæcology.—By Henry T. Byford, M. D., Professor of Gynæcology and Clinical Gynæcology in the College of Physicians and Surgeons of Chicago; Professor of Clinical Gynæcology in the Woman's Medical School of Northwestern University; Professor of Gynæcology in the Post-Graduate Medical School of Chicago. Second Edition: containing 340 illustrations, many of which are original. Philadelphia, Pa.: P. Blakiston, Son & Co., 1021 Walnut street. Cloth \$3.00.

As a handbook for physicians and students, this work possesses many advantages over those usually found in doctors' offices. The first thing that catches the eye on examining the book is a system of marginal references arranged as a guide to the busy practitioner, calling attention to the important points in each paragraph. The arrangement of the subject matter is entirely systematic.

Part I.—Diagnosis and Treatment.

Part II.—Anatomy.

Part III.—Development and Anomalies of Development.

Part IV.—Functional and Nervous Disorders.

Part V.—Traumatic Lesion of the Genital Tract.

Part VI.—Displacements.

Part VII.—Inflammation and Hyperplasia.

Part VIII.—Genital Tuberculosis.

Part IX—XIII.—Carcinoma, Sarcoma, Myoma, Fibronia, Cystic Tumors, Lipomas, Vascular Growths and Tumors.

Part XIV.—Extra-Uterine Pregnancy, etc.

The subjects are simplified by the use of two kinds of type, viz.: a long type for essentials, such as the student should master, and a small type for such amplification and addition of practical detail as may be of advantage for the practitioner. The smaller type is appended to the paragraph in such a way that it can be omitted or included without creating confusion.

The chapters in part one on Gynæcological Technique, and the Principal of Gynæcological treatment, are more minute in detail than is usual in such a volume.

If there be a "long felt want" in this branch of literature, it is the want of a book which shall meet the needs of advanced students and young practitioners. A book which will be comprehensive and yet concise; which shall emphasize diagnosis, and give clearly, explicit directions for treatment, observing the minor details of surgical technique in minor gynæcological operations, with reference to the duties of nurses and assistants, which shall be addressed to the students and young practitioners rather than to the specialist. Such a book on the diseases peculiar to women is sure to meet with general acceptance from the class of men for whom it is intended. The Manual of Gynæcology by Dr. Byford, meets these requirements. It covers the subject in much the same style and manner that a judicious teacher would adopt. It lays a solid foundation,

etc., for future study; is elementary in character, and is yet sufficiently explicit to form a satisfactory guide to any general practitioner. The illustrations, which are numerous, clearly elucidate the text. Taken all in all, we consider it the best manual on this subject that has appeared in recent years, and would advise all young practitioners to buy and read the book.

Artificial Anaesthesia.—A manual of anaesthetic agents. By Lawrence Turnbull, M. D., Ph. G., fourth edition, revised and enlarged, with illustrations. P. Blakiston, Son & Co., Philadelphia.

Is it not a thing beyond reason that we should persistently neglect the study of anaesthesia, its physiological action and its scientific methods of uses, in spite of the accidents, the untoward deaths that result every year from a lack of just that knowledge?

In most hospitals of this country anaesthesia is turned over to some trio who is given the task because the surgeon wants the best heads and quickest hands to help him at the wound, and anyone seems good enough to give the anæsthetic.

It is a happy go-lucky arrangement presided over by fate.

There is one book published in this country that is wholly and absolutely satisfactory on the subject of anæsthesia—it is the book we are now tardily reviewing. We call special attention to it not simply because it is specially worthy, but because every student of medicine, or every graduate, should be not only compelled to read this book, but to learn the student's supplement (Chapter xxii of Part seventh), by heart—a catechism as it were. A serious study of this very serious subject can but leave a man far better equipped to practice his profession and undoubtedly be the means of saving life.

This work, now in its 4th edition, covers the field of anaesthesia completely, every known anaesthetic drug or measure is handled thoroughly. It would be superfluous for the reviewer to attempt to do more than urgently advise all who may ever have occasion of administering or using any anaesthetics, to purchase, study and keep for reference this valuable book. There should not be a library so small that this book should not be on its shelves, costing but two and one-half dollars and worth its weight in gold.

We do not agree with what the author says about Crawford Long, as we think he is biased, but then history and science are separate things and we are willing to forgive historical errors, for the valuable scientific truths with which the book is replete.

What a Young Man Ought to Know.—By Sylvanus Stall, D. D. Vir Publishing Co., 507 Hale Building, Phila. Price \$1.00.

The second volume in a manly, but pure and invaluable series of books on Self and Sex, adapted to boys and men of various ages. In these pages the author in a plain, practical and most satisfactory

manner answers the mysterious problems which perplex the mind of every young man. The information, suited to persons of different ages, is in separate volumes. Impurity and pruriency have no place in these pages. The author thoroughly understands of what he writes and to whom he writes. There is no evading or half concealing, but young men are made intelligent in a manly, pure way. The chapters on "Evils to be shunned and consequences to be dreaded" disclose the dire consequences which attend vice in a manner nowhere else found and in language so intelligible to the ordinary reader. The wide dissemination of such information as this book contains will save multitudes of men from paths of vice and ruin. This book is commended by men like Drs. Francis E. Clark, J. Wilbur Chapman, by college presidents and eminent physicians. This book merits a place in every public or private library. Every young man ought to buy and read this little volume.

SOCIETY PROCEEDINGS.

CLINICAL SOCIETY OF ST. JAMES DISPENSARY

STATED MEETING HELD DECEMBER 4th, 1897.

Dr. Van Marter presented for examination a patient who had recently had mediastinal abscess, which ruptured into a large bronchus, discharged by coughing, and apparently cured. The case will not now be described, as a paper is being prepared which will describe it in full, with illustrations.

Dr. St. J. B. Graham read a paper on puerperal infection, its cause, pathology and treatment (see page 25). The discussion was opened by Dr. Corson.

DISCUSSION.

DR. CORSON—As the subject under discussion is the treatment of puerperal infection, I shall have nothing to say of prophylaxis. Precautions here are universally recognized, and I would simply state that I of course favor them; I cannot, however, accept such vigorous treatment as the use of a stiff brush in the vagina.

I wish that the essayist of the evening had seen fit to bring out in sharper lines the two very distinct types of puerperal infection, namely, the sapræmia and the septicæmia, one a much less dangerous condition and amenable to local treatment, the other a very serious condition, and one, unfortunately, very much less amenable to treatment, local or general. In one the curette and the douche will change for the better all the symptoms; in the other the curette and douche may do harm, especially the latter, rather than good, for the system is in a condition of great depression and any additional shock may make matters worse. In one the pulse is good, though the fever

may be high; in the other the pulse is bad and the fever not so high usually. I speak of the ill effects of the douche in the former, as I had a fatal case of puerperal septicæmia which I think would have recovered had I not used the douche, and the douche used with every precaution. In septicæmia, the blunt curette and the douche, with a good drain, will cure probably 99 per cent. of the cases if used early; in septicæmia proper, with the bad pulse from the beginning, with few or no symptoms of local trouble, with anxious countenance and sweet breath, and sweats, the large majority will die in spite of all treatment, for we have the blood surcharged with an animal poison, which requires in all probability an antitoxine to antidote it. The anti-streptococcic serum now under trial still requires very careful investigation to prove its utility. I have had no experience with it.

Fortunately for us the majority of the cases of puerperal infection which come to us are sapræmia, and are usually easily controlled. My own experience leads me to view with favor very foul lochia. The sapraemia seems to antagonize the more virulent toxine. I have yet to have a death where it existed, whilst all my fatal cases have shown little or no fetor or evidences of local trouble.

As antiseptics I shall still cling to HgCl_2 , carbolic acid and creoline. Any torn vaginal or perineal surface I should unite at once. Never the cervix, however, as it would tend to narrow or close this natural outlet for the lochia. I am absolutely opposed to touching torn vagina or cervix with iodine or strong carbolic acid as discouraging speedy union, believing that the usual antiseptic douche will clean all abraided surfaces. If we have chancroids or phagedenic sores to treat it is time enough to use strong applications, and here, of course, nothing less than HNO_3 .

I am opposed to the coal tar group except in small doses for analgesic effects. When used as antipyretics they injure the patient and deceive the physician. I have seen physicians prescribe veratum viride in fulminating septicæmia, and rubbing their hands with glee because the pulse had been brought down to 70 from 140, and the patient was dying.

I believe in free catharsis in the beginning, and kept up in certain cases. In ordinary septicæmia I give quinine with nitric acid. In marked septicæmia I drop all drugs but alcohol in large quantities and morphia for sleep.

I have had in two very severe cases wonderful results from ice over the entire abdomen, and kept there for days, with the skin of the abdomen as red as a boiled lobster. I find it generally recommended by the authorities.

I encourage the taking of large quantities of fluids; peptonized milk, and whiskey and water, and barley water in the place of plain water. Subcutaneous injections of normal salt solution, or intravenous injections of the same.

While it may be easy enough to know *how* to interfere it is not so easy to know *when*. Many cases have the slight septic fever on

the third day, known as the "milk fever," lasting from 24 to 48 hours, which disappears spontaneously and amounts to nothing. Here interference would be officious. But if this fever starting on the third day, rises above 101, say, with a certain amount of uterine tenderness and a uterus larger than it should be at this stage of the puerperium, with scanty or suppressed lochia, or lochia with more or less fetor, a furred tongue and general malaise, we have before us a clinical picture, not very uncommon, and which yields to a proper curettage and douche, with a mercurial purge and a saline. I am sure we have all done ourselves credit in these cases. To do these cases properly an anæsthetic may or may not be necessary; it depends upon the patient. I have curetted many without anything. Others would not permit the introduction of a speculum without an anæsthetic.

But if we have before us a case where the pulse is rapid and weak, where the patient has a dejected and anxious look, and where usually the fever is out of all proportion to the gravity of the other symptoms, and where the local symptoms are insignificant apparently, we have before us a clinical picture which is totally different from the first and which shows strong Rembrandt shadows with very little light. If we interfere locally it must be under an anæsthetic, for the system is already under a profound shock and any further shock must aggravate. We shall find usually that there is no great amount of uterine debris to be brought away. The fact of the matter is the poison has long before leaped the uterine barrier and is far away from curette or douche. In the large majority of the cases it is even beyond hysterectomy. This latter step is not to be considered, however, unless the operator knows his business well. I am far from being satisfied with the cases so far reported.

DR. FITCH.—MR. PRESIDENT AND GENTLEMEN: Dr. Graham has so thoroughly covered this subject that there is not much to bring out in the discussion, since my treatment so completely coincides with his. However, we will endeavor to illustrate the differential diagnosis of two forms of septic infection most commonly met with—sapræmia and septicemia.

Sapræmia is a disease due to an introduction into the system of the products of putrefaction; these products are produced by many different schizomycetes, the so-called saprophytes—minute organisms which are allied to algæ and are found all over the world in streams, plants and animals. By their growth and multiplication these organisms produce certain chemical substances, the so-called toxins, a kind of ptomains which give rise to fevers. Ptomains are alkaloids produced in dead animal tissues during putrefaction.

Septicemia is a disease due to a few well known microbes that actively enter the tissues and blood with or without the local seat of infection; these microbes are almost exclusively streptococci pyogenes and staphylococci and the bacilli of Kloebs and Loeffler.

Now to follow up these points we will first report a case of *sapræmia*. Mrs. H., white, aged 32, was taken in labor Sept. 8th, 1893; the labor was normal in every particular; she was delivered in eight hours of a dead foetus, which had probably been dead for a week; hemorrhage was not alarming, but quite free; placenta was delivered without trouble; uterus contracted normally and patient was thought to be doing well. The 12th of Sept. we were asked to see the patient by the attending physician, to whom I am indebted for the history. The second day the patient was restless and complained of not having "enough flow." Bowels had responded to the usual laxative—castor oil. Third day, late in the evening, patient had a severe chill, followed by rapid rise in temperature, 104F.; pulse 120, respiration 26; noticed slight odor of lochia and mental hebetude.

On entering the lying-in chamber the first thing that greeted our olfactories was the odor of putrefaction, which was very marked, patient somnolent, with pale, anxious expression; pulse weak and very feeble, 120; temperature 105F., respiration 30, abdomen greatly distended, reaching above the umbilicus; uterus so soft and flabby that it was with difficulty that the organ could be outlined through the abdominal walls. The milk flow ceased after chill, skin was moist, bed and body linen bathed in perspiration. We at once ordered sterilized hot water, and with nail brush (which we always carry) cleaned and scrubbed hands and arms as if preparing to do a major surgical operation, washed and scrubbed the external soft parts, again washing our hands and arms; we then with a previously sterilized syringe and 1-2000 bichloride solution flushed the vagina; after again observing minute aseptic surgical technique, made an intra-uterine injection of sterilized normal salt solution, followed by 16 ounces of Marchand's peroxide of hydrogen, which coming in contact with the albumenoid products of putrefaction caused ozone to be liberated, destroying the offensive odor and bring out broken-down blood clots, etc.; leaving a sterilized drainage (six-inch glass) tube in the uterus to facilitate escape of the secretions, and directing patient to rise in the sitting posture to evacuate the bowels and bladder, to aid drainage, we then covered the vulva with a sterilized towel, ordered F. E. ergot, one drachm every two hours, till uterus contracted, gave 20gtts. ferri chloridi, and 20 grs. S. quinine and 20 oz. whisky, had bed and body linen changed and replaced by those fresh from the laundry. In two hours the patient expressed herself as feeling better, pulse 108, temperature had fallen to 103F., respiration to 22, uterus was beginning to contract, odor of putrefaction not so marked. After four hours from the first injection we again thought it advisable to irrigate; used permanganate of potash instead of the mercury bichloride. This was done under the same *aseptic* precautions as the first; both uterus and vagina were irrigated with this injection, several shreds and bits of tissue were washed out; we then used the dull curette and succeeded in thoroughly

cleaning out the uterine cavity; followed curettage with Jviii of Marchand's peroxide of hydrogen, which completely cleaned the organ and allowed pure sterilized water to run through till it returned perfectly clear, observing the minor details of *aseptic technique*.

Ordered the medicinal treatment continued, with special directions as to the injections, to be repeated every four hours. Milk, eggs and soups to constitute the diet.

Next day patient expressed herself as feeling much better, after having a good night's rest; found temperature 101°F .; pulse 110, respiration 20, uterus contracting and no tympany; treatment continued, recovery uninterrupted.

The treatment of *sapraemia* easily falls under four heads; the only discussion is, as to the best methods to obtain the objects sought for, which are,

1st. To cleanse the parturient canal. 2d. To secure tonic uterine contractions. 3d. To control temperature. 4th. To support your patient.

Now, let us compare the above case of *sapraemia* with the record of a case of *septicemia*. Mrs. —, white, aged 24, was confined on August 8th, 1895. In her second labor, first stage was 18 hours; the second was one hour; third stage was about ten minutes, normal labor; placenta delivered by Crede's method, uterus promptly contracted; administered one dr. F. E. ergot, ordered laxative, and left.

Next morning found patient had not rested during the night, pulse 100, temperature 101° , and respirations 20, uterus rather large, but firm and slightly tender on pressure; ordered turpentine stupes to abdomen, and an antipyretic—sulph. quinine, 5 grs., and F. E. ergot, $\frac{1}{2}$ dr., every two hours. Thinking my patient would do well, did not call till next morning, and found she had a chill during the night, pulse was 120 and temperature 103° , respirations 24, area of tenderness increasing in all directions, which continued till the whole abdomen, which was already tympanitic, was included. The uterus remained contracted; there was no offensive lochial discharge, the pulse was very weak and feeble, the breath had an offensive sweet odor, the mental faculties were clear. Ordered quinine, iron, and strichnia, good nourishing diet, and next day arrived just after patient had a hard rigor, lasting 20 minutes, pulse 120, temperature 104° , respirations 30, very nervous, hiccoughs; tympanites very pronounced; whole abdomen tender to touch; could not take a full breath without pain. The respirations were shallow and irregular, some subsultus, tongue dry, coated to tip with a brown coating, face flushed, lochia free but not offensive. We ordered vaginal injections of sterilized water every three hours, tr. ferri chloridi, 15 gtts., every two hours, phosphoric acid dil., 10 gtt., every three hours, sulph. quinine, 20 grs., every three hours, and added to this tr. veratrum viride, 5 gtts., every two hours, closely watching its effects. This treatment was contin-

ued for 12 hours. During this time the pulse dropped to 84, and the temperature to 99.5F., and respirations to 22; patient had slept all told about two hours; gave three grains of calomel in $\frac{1}{4}$ gr. tablets, one every 15 minutes, and ordered light liquid breakfast, of which patient only took a small quantity. Same treatment continued. Twelve hours later found patient had slept about four hours, pulse 86, temperature 99F., respirations 20, lochia free and of an oily appearance, with a very slight odor; used a strong (50 per ct.) solution of "borolyptol," which stopped the odor and rendered the canal clean again. Treatment continued. Six hours later, found the patient feeling much better, had slept 40 minutes, pulse 78, temperature 99, respirations 20; ordered a large soap sud enema, result, very large action; gave strychn. sulph., 1-50 gr., hypodermically. Ordered treatment continued. Tympanites was rapidly disappearing, soreness almost gone; discontinued the turpentine stupes, lochia normal in amount and color. Twelve hours later found the patient much improved, pulse 80, respirations normal, temperature 99; stopped the veratrum viride and continued the other treatment. Twelve hours later, pulse 78, respirations normal, and temperature 99F. Ordered good nourishing diet and a continuance of the treatment. Twelve hours later, the patient had slept about four hours, pulse 78, temperature 99, tenderness over abdomen scarcely noticeable, lochia normal in amount but no odor, regular evacuations from the bladder and bowels; ordered ext. of malt and stopped the quinine and iron, as I was then giving it, and wrote a $\mathcal{R}$ for the four chlori. Recovery was uninterrupted.

The only change we would make in treating cases of septic infection to-day would be the substitution of formalin solutions instead of permanganate of potassium and bichloride of mercury solutions. We consider formalin in from two to four per cent. solutions far superior to any known antiseptic or germicidal agent.

The only point worthy of mention overlooked by Dr. Graham in his treatment was transfusion. In cases of septicemia, where the patient is dying from toxine poisoning, if you bleed on the right side and use an intra-venous injection of blood from a healthy subject, or the normal saline solution injected into the left side, or vice versa, you will rid your patient of a part of the poison that is destroying her chances of recovery. I have known lives saved by this means of treatment.

DR. LANIER.—MR. CHAIRMAN AND GENTLEMEN: In reviewing Dr. Graham's paper I would mention that in giving the cause of puerperal infection he failed to mention the fact, which has been established beyond doubt, that there is a form of infection during the puerperium where the source of infection or entrance is not through the genital organ of the patient, but the micro-organism does pass from the large intestine into the uterus and its appendages, and causes uterine symptoms identical with those observed after direct

infection by the streptococcus. This condition is usually found only in women who are constipated, with a dilated colon, usually occurring several days after confinement. Keeping the patient's bowels freely open will usually prevent this condition. Likewise, we often cure such a condition by free catharsis. I mention this point, not because I would name the condition along with puerperal septicaemia, but because it is highly important for us to know every phase of puerperal fever in order that we might meet the enemy—sepsis or toxæmia—with our tactics arranged for war and destruction to the micro-organisms and toxins. We all agree with Dr. Graham as to common sources of infection in the lying-in woman, but I would like to ask the question, why is it that although all the country negroes and poor whites are waited on by ignorant midwives, who not only use lard and greases of various kinds to lubricate their fingers to examine the condition of the os and presentation of the child, without having even washed their hands, and with a total lack of cleanliness from beginning to end—why is it, I say, that only a very few of these women ever have any trouble to follow labor? Is it possible that micro-organisms which develop puerperal sepsis are not always present with the accoucher and around the patient?

I will pass over the pathology of puerperal conditions and notice more particularly the author's remarks about the all-important subject of treatment—both preventive and curative.

The fact is world-wide known (except perhaps in the country districts of England), that where cleanliness is observed in the parturient and puerperal woman her chances of being free from child-bed fever are practically assured. We are all familiar with hospital statistics which show that thousands of women once succumbed to puerperal diseases, from which cause it is now rare to find a death.

Of course we know most positively that this overwhelming victory has come about by taking patients out of infected wards and by keeping them clean from the beginning to the end of their confinement.

If cleanliness, or asepsis, is the one important consideration in the prevention of puerperal infection, then why not observe absolute asepsis from the first step in the preparation of every woman for parturition and the lying-in period. Inasmuch as it is important to protect our patient from all sources of danger, it becomes absolutely necessary for us to begin with surgical cleanliness both in respect to our patients and ourselves, in order that we might feel safe from the beginning to the ending of our service in every case.

In the hands of modern obstetricians we rarely hear of any sepsis following child-birth, but there are a sufficient number of cases occurring to remind us of the necessity for being careful in the management of our patients. It is my opinion that if we take every precaution that is known to the laparotomist, our patient cannot develop sepsis any oftener than we should look for septic peritonitis in a patient upon whom a clean laparotomy had been performed where there was no pus encountered.

Some may say that I am going too far in my requirements. To all such I would answer, that if half way cleanliness saves nearly every woman from infection, why would not perfect cleanliness save all? To my mind an ideal accouchment would mean a great deal of care and work for the doctor and the nurses. I would map out the following course for the prevention of infection in the puerperal patient, viz: When labor has begun and the doctor has arrived it would be his duty to order, first, a general warm bath and good scrubbing of the woman, a free cathartic dose of a saline, free saline vaginal douche; second, dress patient in clean clothes, have perfectly sterilized sheets, napkins and towels for her; third, with tr. green soap and water and razor shave thoroughly the pubic and vulvar region, and with clean hands and sterilized warm water clean the vagina, and of course wash the vulvar region thoroughly and apply sterilized gauze or napkins, to remain except when removed by the accoucher for examination; fourth, the physician must always have his hands surgically clean when he examines the vagina or the os uteri; fifth, last of all keep scrupulously clean everything that touches the genitalia of the patient from the beginning of labor until the patient is dismissed.

I am heartily in favor of using the finger in the vagina to find out the progress of labor, instead of depending upon the method of external palpation and auscultation, and if the patient and the doctor are both clean there will be no danger of infection from examination.

It does not come to my mind that it is possible for the physician to satisfactorily determine the position of the child, nor the progress of the labor, except by using the finger in the vagina. I believe the obstetrician should feel as free or freer to make frequent vaginal examinations during labor as the surgeon does in having his hands in an open wound. Furthermore, it would prove very unsatisfactory to the general practitioner to be compelled to make out the progress of labor by the outside method, for oftentimes it is important to make other visits or attend operations, therefore the only certain way to ascertain the stage of the descent and condition of the birth canal is to put the finger in the vagina. While I advocate perfect asepsis in the lying-in room, I am aware that the difficulties to be frequently met are almost unsurmountable; especially does this apply to the general practitioner who cannot exactly choose his patients or their nurses; and right here, gentlemen, let me state that I believe we are as a rule too lax in allowing our confinement cases to be nursed by anybody who the family happens to engage. Since it is upon us that the responsibilities lie, and the abuses fall, it should be our part to insist upon having an experienced nurse, who is either known to us or who comes well recommended by other physicians.

In order to carry out a common-sense, practical plan of cleanliness in the lying-in chamber, the doctor must make the best out of what is sometimes very unpromising surroundings, but with a smart,

common-sense nurse he may be able to keep his patient and her dressings at least clean. It is only in hospitals and the homes of the well-to-do that it is possible to observe strict asepsis and antiseptis.

My remarks so far have been on the line of preventive treatment, for although Dr. Graham has made clear the plan of asepsis, he fails to place enough emphasis upon the surroundings of the patient and the best way to observe at least moderate cleanliness in the poor and ignorant among whom we are frequently thrown in our work.

For a number of years I have made it a rule to curette the uterus and irrigate it with a bi-chloride solution, afterwards washing this out with plain water, and lastly applying tr. iodine to the endometrium, and leaving in the uterus one 30-grain iodoform suppository. This has been my course in nearly every case of fever during the puerperium where I could not throw out simple fever of a non-septic character. When this method is carefully followed one daily treatment is usually sufficient to combat any sepsis arising from the genital tract. Indeed, I have several times seen cases, which I knew positively to be of a severe type, promptly yield to one or two such treatments. In fact, it has been my good luck for the past eight years not to lose a case from puerperal fever, whereas, previously it was my ill luck to lose three women from puerperal septicaemia within a period of about two years.

I assure you gentlemen who are not familiar with puerperal fevers, that there is no picture to come before the eyes of a medical man which so completely paralyzes his means to cope with disease than does the one where a woman is thoroughly saturated with puerperal sepsis, who is dying before your eyes with blood poisoning, and you are forced to see her die, knowing that you are powerless to save.

It is to be hoped that serum-therapy will yet give to us a remedy which will enable us to save the lives of all women who develop puerperal septicaemia.

DR. VAN MARTER.—I am not acquainted with the use of formalin solutions for intra-uterine or vaginal use, but imagined it to be very irritating in strong solutions. Dr. Graham's remarks and suggestions in regard to the use of steam from a formalin solution, or rather vaporized formal, are very interesting and the idea well worthy of trial. I do not like the use of a dilator in puerperal infection; it is but rarely necessary to dilate in order to secure a free return current from a properly constructed intra-uterine irrigator. It has been my habit, after irrigation, to mop out the uterus with Churchill's tincture of iodine. In most cases I curette, quite often doing so when no shreds, clots or other detritus can be found, on the belief that it does at least no harm, nor have I ever seen any harm result therefrom.

One very important point is to use the water for douching *very* hot. Internally, besides the use of whiskey ad libitum, I very rarely omit the use of large doses, frequently repeated, of the chloride of

iron and bi-chloride of mercury, free purging with salts, and in the future in very grave cases, I shall never omit the use of intravenous injections of normal salt solution. I have seen lives saved by this measure. The technique of the operation is simple, and at least it does no harm. It is often wise to precede the injection by venesection, in those few cases in which the pulse is not too dangerously weak.

I wish to impress on you all the very urgent necessity, in this locality, of blood examinations for plasmodii in every case of temperature in the puerperium.

There are too many cases of mistaken diagnosis, and in every case a blood examination clears up doubt at once. Quinine is useless unless the blood examinations are made. I can recall two or three cases in which blood from the finger had been examined with negative results, the condition of the puerpera ascribed to septicæmia, when subsequent examination revealed a large spleen, a puncture made into that organ, which when examined revealed crescentic bodies and broken-down plasmodii, and the patient eventually cured by the appropriate treatment.

DR. LATTIMORE.—In Dr. Graham's paper in the discussion which is now on, the ground of puerperal infection has been pretty well covered, and as the hour is late I will limit what I have to say to a question or so and a few remarks. I would like to ask Dr. Graham whether he is an advocate of a hot bichloride vaginal douche, 1-5000, immediately after the completion of the third stage of labor; if not, why not? I favor such a douche, as it removes clots from the vagina and thoroughly cleanses it, and in addition, reflexly, brings out a good, vigorous contraction of the uterus.

I should also like to ask Dr. Corson whether he favors curettement in cases where he is sure that the placenta and membranes have come away intact; if so, why?

Dr. Graham has fully outlined the preventive treatment of septicæmia, and on all of which I thoroughly agree with him. Now, as to the treatment of the actual condition of septicæmia, with special reference to the advisability of the uterine douche (gentlemen, the term uterine douche I use intentionally, as I like the term better than the so-called intra-uterine douche, as all douches appertaining to the female genital tract are either vaginal or uterine,) in cases where the uterus is known to be free from placenta, membranes and clots. As to the wisdom of the douche, my mind is not quite made up. It seems to me that sometimes the thrombi closing the mouths of the uterine sinuses are washed away by the douche, rapid absorption takes place, and very soon is followed by a chill and collapse.

Gentlemen, it has been my good fortune to see, in a large maternity hospital, used exclusively for that purpose, from 450 to 500 deliveries, without a single case of septicæmia. Of course, I fully realize that such statistics are impossible in private practice. On the

general treatment of septicæmia, I think we all agree—stimulation, nourishment, small doses of quinine, and hot vaginal douches.

Now we come to the second form of puerperal infection, viz: sapræmia. To my mind the best plan to avoid this form of infection is as follows:

1. Be sure of asepsis.

2. Be careful to observe whether placenta and membranes have come away complete. If membranes not complete, then either go into the uterus just after the third stage, or 24 hours later, with Tucker's membrane forceps, anæsthetic unnecessary. Then we at least feel sure that uterus is free from debris. The above was carried out in every case in the hospital and helps to account for the good statistics. In cases where the placenta came away complete and part of the membranes were left behind, the rule was as follows: If on examination 1-5 of the chorion was found missing (the amnion is never left in uterus unless placenta remain) it was not "fished for," but the patient was given daily, A. M. and P. M., bichloride douche, 1-5000. Temperature 110. The remaining 1-5 of chorion came away in shreds or was completely disintegrated, and as a general thing, without imparting any odor to the lochia. With the above carried out we had very few cases, even of sapræmia.

3. In a third class of cases we found that a set degree of sapræmia was due to the following cause, viz: Poor drainage, the uterus was deflected to either side or had become markedly antiflexed or retroverted, forming an acute angle of the cervix, thus damming back the lochiæ, resulting in a fœtid odor and some fever. This cause was always thought of in cases where we were sure of our asepsis and that everything had come away complete. I say sure of asepsis, as some cases were brought in on the ambulance, in labor, when we had no time for preparatory cleansing. In the above cases by correcting position of uterus and giving hot douches, the fever, which ran from 100-102.5, quickly subsided.

Mr. Chairman and gentlemen, the result of my experience and observation has been, that not very uncommonly during puerperal convalescence the fever is due to other trouble than in the parturient canal, and we should think of the following causes of fever and at least exclude them from the etiology:

- (a) Common causes of fever, malaria, tuberculosis, tonsilitis, etc.
- (b) Breasts—abscess forming.
- (c) Bowels—constipation will easily cause temperature of 100-102°, which goes down when bowels are moved.
- (d) Be sure to have vulva good, clean and sterile, and if hot douches are ordered, look after douche bag, points, etc., so that there is no chance of infection from that source.

I agree with Dr. Lanier, that frequent examination during labor is wise, as the progress of labor can thus be accurately ascertained. Of course it is understood that fingers are clean before introduction into vagina.

DR. GRAHAM—In closing the discussion on this subject, in answer to Dr. Corson I will state, that the paper is on puerperal infection from the writer's standpoint. Prophylaxis I consider the most important question at issue—prevention is better than cure.

I only advocate the nail brush for the hands and arms of the physician and nurse. It not being a paper on differential diagnosis the points between septicemia and sapræmia were not dwelt upon. Chancroids and any other lesion of the parts can be diagnosed, treated and relieved or cured beforehand, where the patient can be seen. I agree that tears and ruptures should receive proper and prompt attention. Bichloride of mercury causes coagulation of the albumen of tissues and in wounds forms sometimes a coagula underneath which bacteria may grow; that is why I prefer formalin, besides the formalin is non-toxic. The dangers of absorption poisoning and chemical peritonitis from bichloride are great, and such cases have been reported. Certainly the chemical agent held in solution in the water of the douche has something to do with its untoward effects. I have said nothing of antipyretics, because their use is plainly symptomatic treatment, and in my opinion often do more harm than good.

Outside of generalization, each case is a law to itself and diet, treatment and handling will rest with the constitution and individual peculiarities of the patient, and the extent and character of the process of infection.

To Dr. Fitch my answer is the same, that mention of sapræmia as differing from septicemia, both in treatment and results, would cover the question for this paper without going into details as to diagnosis and perhaps as to treatment.

Dr. Lanier will notice that auto-intoxication is briefly referred to. This condition I consider one not so much caused by bacteria or toxins but by leucomaines, products of retrograde metamorphosis, which on account of insufficient elimination or oxidation become absorbed.

The only reason I know why the hardy women spoken of do not develop puerperal fever is because they live more as nature meant they should, and possess more of that born or acquired immunity to the disease-producing properties of micro-organisms. This question opens the gates to that vast and almost untrodden field of susceptibility and immunity. There is something in the organism of animals that protects them from the harmful influences of certain species of micro-organisms. Exactly what this is, biology and bacteriology have not as yet made known. We do know that the healthier and stronger the individual the less liable they are to infection by pathogenic organisms. Why do we not have infection through the unbroken mucous membrane of the vagina or mouth where numerous and varied bacteria are being continually introduced? It is not the acid or alkaline conditions of the fluids present, but some chemical principle which is there, and which acts in a manner to rob the bacteria of the capability of doing harm.

Sheets, undergarments and the absorbing pad should be fresh from the laundry. The pads worn by the patient may be of any desired material, but I prefer cheese cloth (gauze) freshly boiled in a one per cent. soda solution and wrung out for use.

Too great force or insufficient outward flow of the douche might cause fluids to be forced through the tubes into the abdominal cavity; bichloride can thus set up a chemical peritonitis.

To Dr. Lattimore's questions I would say, that after a normal labor, where I was tolerably sure of asepsis, I would not use any kind of douche, because there would apparently be no indication for it. In sapræmia or septicemia I would not hesitate to use the douche where indicated. I would not use bichloride of mercury however. I agree with Dr. Simmons, that slow pulse shows small amount of toxine or septic absorption. Free catharsis, perspiration and diuresis certainly is good treatment, in that it aids in throwing off the poison.

In the closing of my paper Dr. Van Marter will notice that blood examination had been made of the case reported. In our low-lying latitude the diagnostic value of blood examination for plasmodium cannot be over-estimated in all cases where fever is found. Formalin or formaldehyde, in the strengths one to two per cent., is not irritating, and it is of great value as a penetrating agent with its property of fixing and penetrating the capsule surrounding bacteria and killing them and their spores in a manner that bichloride will not accomplish. Its advantages over bichloride are many.

The finger in the uterus will determine whether or not it is soft and pulpy and the condition of its interior as to freedom from retained material, new growths or trauma. The dilator is to be used with due caution; it certainly gives a free return flow and thorough washing out gotten in no other way. It needs only to be used to be appreciated. Transfusion in extremis I have seen do good. Washing the blood has proven of value in some cases.

NEW YORK ACADEMY OF MEDICINE.

STATED MEETING, NOVEMBER 4TH, 1897.

EDWARD G. JANEWAY, PRESIDENT.

The meeting was in charge of the section on genito urinary surgery.

STERILIZATION OF URETHRAL INSTRUMENTS.—Dr. Edward Martin, of Philadelphia, read a paper with this title. It was limited to a consideration of the method by which catheters could be rendered surgically clean, as metal instruments were easily sterilized by flaming and boiling. Sterilization immediately before use, the author said, was often impracticable, and when the catheter was required the conditions were usually peculiarly favorable to infection. The ideal conditions for catheterization would be a clean, supple, well-lubri-

cated instrument of appropriate calibre, passed by sterile hands through a sterile urethra into a normal bladder. In the first place, the instrument should be so constructed as to be free from blind pockets for the collection of filth. The most dangerous part of the ordinary catheter was the blind space beyond the eye; hence only catheters provided with a solid head should be used. The internal surface of the catheter was rarely even approximately smooth, and for this reason the difficulty of sterilizing the interior was enormously increased. It was worthy of note that the soft-rubber catheters were the smoothest. The mechanical cleansing of a catheter was best accomplished by warm soapsuds injected into the catheter immediately after use. After soaking, the instrument should be washed in freshly boiled water; the water within the instrument was then "swung" out, and the catheter placed in an oven for a few minutes to dry. All soft instruments stood well this process of mechanical cleansing. Sterilization might be accomplished with heat or with germicidal drugs. Dry heat had been tried by him, but it had hopelessly ruined the catheters, and the same was true of steam. Boiling, however, acted more satisfactorily, and if not continued for more than five minutes the better-grade catheters were not injured and were rendered sterile. The cheaper catheters were damaged by such boiling, but the rubber instruments seemed rather to be improved by it. This process of sterilization was adapted to the needs of the layman, and the catheter could be stored in a sterile cloth. Alcohol and carbolic acid quickly destroyed the finish of a catheter. Any gum catheter would lose its lustre, even if soaked in alcohol for only one minute. Antiseptic soaps had seemed to open up a very promising field, but his experiments had shown them to be entirely useless. Another easy method of sterilization was that by the vapor of mercury. The washed catheters were placed in a closed compartment containing metallic mercury, either exposed in a shallow tray or in a finely divided state in a flannel. An exposure in this way for fourteen hours, it was claimed, would completely sterilize the catheters. However, his experiments and those of others had shown that reliable sterilization could not be obtained unless the exposure was about five times as long. A convenient and efficient method of sterilization was by the use of a tight box with shelves for the catheters and a compartment containing paraform powder. Culture experiments had proved the method to be exceedingly satisfactory, but an exposure of eighteen hours was insufficient, and in the case of instruments of fine calibre the results were unsatisfactory even after twenty-four hours. Even unwashed catheters of moderate calibre were rendered absolutely sterile by an exposure of forty-eight hours in the paraform box.

The method was simple and reliable, and provided for the aseptic storage of the instruments. The vapor was found to be slightly irritating to the mucous membrane of the urethra when the instruments were used. The formaldehyde process had been found com-

pletely satisfactory for the sterilization of the instruments of fine calibre, such as urethral catheters. The vapor should be passed directly through the catheters. The formaldehyde was conveniently kept in a tube under pressure, and by unscrewing a cap the vapor could be injected in a concentrated form into the catheter. A few seconds had been found amply sufficient to sterilize the interior of even the fine catheters. It should not be forgotten that the lubrication and the introduction of a catheter were often the means of causing infection. It was a good plan for the operator to wear sterile cotton gloves, changing them for each case. The penis having been passed through a hole in a sterile towel, the meatus should be syringed out with salt solution.

THE BEST LUBRICANT.—The lubricant was best kept in a narrow jar deep enough to allow of the introduction of the catheter to a depth of eight inches—for example, a specimen jar. Investigation had failed to discover a thoroughly satisfactory aseptic lubricant. The best were albolene and a twenty-three-per-cent. solution of boroglyceride. The former made it more difficult to clean the instrument; the latter was a mild antiseptic, decidedly inhibitory, and an excellent lubricant, although not so good as the albolene. Argonin, in the strength of 1 to 1,000, had been experimented with, and had been found to cause but slight irritation. By flushing out the urethra during catheterization, the danger of infecting the bladder could be greatly lessened, but there was a distinct danger incident to the use of all irritating disinfectants—i.e., they were liable to set up a local urethritis which would strongly predispose to infection. The sterile catheter should be introduced while sterile salt solution was flowing through it. In cases of long-standing disease of the bladder, he adopted this method and entirely omitted the lubricant, thereby diminishing the risks of infection.

SELF-CATHETERISM.—Patients who were compelled to practice self-catheterism should be furnished with soft-rubber catheters of a size and shape of tip which would permit the easiest and least painful entrance into the bladder. It would usually be found that the soft rubber coudee catheters fulfilled these requirements. Even the most supple woven catheter would be found rigid for half an inch of its length, when compared with the soft-rubber instrument. The rubber coudee catheters had proved far more satisfactory than any others that he had used in practice. These catheters were not only easy to pass, but were cheap and were readily made sterile. The patient should provide twice as many catheters as were needed for use in the twenty-four hours. After boiling the number required for one day, they should be wrapped in a sterile fabric. He had had constructed a bamboo cane, in one end of which was a small cylindrical paraform box containing four catheters, and in the other end another case for the soiled catheters and for the lubricant.

CLINICAL RESULTS MORE RELIABLE THAN LABORATORY REPORTS.—Dr. Samuel Alexander said that he agreed substantially with all that

had been stated in the paper; nevertheless as a clinician he felt that many of the ideas there presented must be characterized as Utopian. It was a very much simpler matter to carry on a system of thoroughly sterile catheterism in hospital than in private practice. In his service at Bellevue Hospital a large number of methods had been tried, and these had been simplified as much as possible. The best grade of catheters had been selected, but he was not yet prepared to give up the woven catheter, although admitting that it was most difficult to sterilize. For a time he had had the catheter washed in soapsuds, then injected with a five per cent. solution of nitrate of silver, followed by a solution of chloride of sodium, and afterward dried and put away. The method was exceedingly dirty and stained the hands very badly; moreover, the culture experiments had not been so satisfactory with this method as had been anticipated. In general, he would say that the clinical results had been very much better than one would have expected from the laboratory reports, and he would very much prefer to trust to his clinical observations than to the laboratory reports of what his results ought to be. Another method had been to throw the catheters into a basin of boiling water immediately after use. They were then collected and washed with soapsuds, and those that could be boiled were treated in that way. He had not found that boiling for five or ten minutes would fulfill the laboratory requirements. Last summer he had used a Janet sterilizer in his office, in connection with formaldehyde, but had found that a much longer time was required to effect sterilization than had been stated, if the catheters were old ones. Another objection was that a catheter must be washed before use, otherwise much stinging pain would be caused by the gas clinging to the outside of the catheter. If this was done with water that was not absolutely sterile, the whole process would be vitiated. Catheters that could not be boiled were immersed in very hot water, after being thoroughly cleansed with soap and water. He could in this way get as good results as by using the catheters sterilized by formaldehyde.

JUST AS GOOD RESULTS WITHOUT IRRIGATION.—At one time he had advocated and practiced the plan of sterilizing the urethra, but he found now that he got just as good results when he did not wash out the urethra as when he washed it out before introducing instruments. For this reason he did not now wash out the urethra before the introduction of the catheter, unless a severe urethritis was present. A good deal depended upon cleansing the meatus, yet simply washing off the meatus was sufficient in an ordinarily clean person. He believed firmly that although one had absolutely sterilized the catheters, if one did not use the instruments with proper skill and dexterity, the amount of trauma so produced would be an active agent in carrying infection from the urethra into the bladder.

THE ESSENTIALS FOR ASEPTIC CATHETERISM.—Three factors were essential for aseptic catheterism, viz: (1) as clean a catheter as possible; (2) the gentle use of it; and (3) the catheter must be of the best grade—not only smooth but sufficiently flexible. New catheters were likely to be too stiff for proper use; they should accordingly be frequently soaked in hot water at first, and drawn through the hands in order to render them sufficiently supple.

CATHETER LIFE.—The method advocated by the reader of the paper for those prosthetics who had to catheterize themselves was a good one, yet it was not probable that it could be carried out in very many instances. In the beginning of catheter life, when there was residual urine with obstruction and when the urine was clear, no pains should be spared by the surgeon to have the catheters absolutely sterile and to see that the catheterism was performed at absolutely regular intervals. A person with an enlarged prostate at the beginning of catheter life could be passed through what used to be the dangerous period of catheter fever without any noteworthy infection of the bladder. But the time would come when that patient did not require such careful watching, when the bladder was not congested, and had ceased to be a fertile field for the growth of micro-organisms. Then the absolute and rigid rules for catheter sterilization were not so important as at the beginning of catheter life.

INDIVIDUAL VULNERABILITY.—Dr. Willy Meyer said that many were inclined to wonder at the number of catheterizations daily performed without any serious reaction and without the precautions advocated being taken. There were certainly great individual differences, and bad results occasionally followed even when unusual care had been taken in the catheterism. It was evident that the virulence of the organisms and the condition of the patient's system at the time exercised a potent influence. It should be emphasized, for the benefit of the general practitioner, that metal and rubber instruments could be sterilized by washing and boiling in water for five minutes.

PREFERS CHLORIDE OF CALCIUM AND FORMALIN FOR STERILIZATION.—His own practice had led him to believe that the best method of sterilization for gum-elastic catheters was by the use of formalin. The instrument could be dried by the aid of chloride of calcium, and then could be placed in a suitable receptacle and exposed to the formalin. The use of the chloride of calcium he believed to be an important point. In spite of the greatest care in sterilizing the instruments and the urethra, urethral fever was bound to occur in a certain number of cases. It was probably due to infection with the colon bacilli in connection with traumatism. He had observed this occasionally in his first efforts at cystoscopy. Nitze had devised a special sterilizer for steaming the cystoscope, but in the speaker's hands its use had resulted in seriously damaging several cystoscopes. It had been found that formalin vapor did not attack the cystoscope; hence it was now possible safely and efficiently to sterilize such instruments. Since he had adopted the plan of flushing out the blad-

der repeatedly after the first passage of instruments in patients suffering from prostatic enlargement, he had not observed urethral fevers. As the ureteral catheters could now be properly sterilized, it was perfectly justifiable to use these instruments, but one should be satisfied at first with passing the instrument only a short distance into the ureters.

THE FLORA OF THE URETHRA.—Dr. Robert W. Taylor said that he was afraid that the elaborate method advocated in the paper was not practicable in most instances; moreover, he was of the opinion that fully as good results could be obtained by the well-known clinical methods outlined by Dr. Alexander. It had been clearly shown that a very common inhabitant of the meatus and its vicinity was the colon bacillus. The first inch of the urethra contained more microbes than any other part, except the bulb. Several good observers insisted that the gonococcus was, under nominal conditions, a harmless denizen of the urethra, and that the changes in the tissues incident to traumatism, as produced by sexual indulgence, the passage of instruments, and changes in the urethra from prostatic disease, rendered these micro-organisms noxious. It was true that this was still a mooted point, but it was well worthy of thoughtful consideration. The speaker recalled one case of what the patient called "acute clap," which had originated from the over-zealous use of the endoscope by a surgeon. Dr. Prudden had found in the cultures from this case the micrococcus ureæ—a micro-organism that had hitherto been considered harmless. He believed there were many saprophytes in the urethra which were usually innocuous, but which became hostile under altered conditions of the mucous membrane. Many a physician was accused of having infected a urethra with germs from without, when he had really done it by the use of too large instruments or by bungling manipulations. It should always be remembered that a man carried around within himself the agents of infection in the urethral canal and perhaps also in the bladder.

THE METHOD MUST BE SIMPLE.—Dr. L. Bolton Bangs said that in considering the relation of infection to an individual patient he had been led to observe that in order to have the physician's directions obeyed, particularly in the prostatic cases, these directions must be as simple as possible. There was no exception to this rule, not even when medical men were the patients. Most men were willing to wash their catheters with hot soap and water, and perhaps even to boil them, but he had not been satisfied with the results obtained in this way. He had been experimenting with simple methods of sterilizing catheters by the use of formaldehyde, but this investigation had not yet been completed. We should always bear in mind that there was a certain individual vulnerability to infection. He had known the most careless and dirty men to live to good old age without the urine having been rendered more than slightly turbid in spite of the long and constant use of the catheter.

THE METALLIC CATHETER RESPONSIBLE FOR MUCH INFECTION.—Dr. Alexander J. C. Skene said that, while he recognized the value of the sterilization of instruments, he was sure that too much stress had been laid upon it, and that quite a number of surgical sins were committed in the name of sterilization and aseptic surgery. He recalled the fact that cystitis had been very common in cases of catheterism before the advent of antiseptic surgery, and his disappointment on finding that the number of cases remained undiminished, even after antiseptic surgery had come in vogue, just so long as the old-fashioned metallic catheter was employed. These instruments had been largely responsible, whether they were clean or filthy, for these cases of infection, for as soon as they had been abandoned the cases of cystitis from catheter infection had been lessened fully fifty per cent. Of course, the surgeon should be exceedingly careful about having the hands and the instruments clean, and this was not difficult of accomplishment in practice. He had found that if a cystoscope or an endoscope were exposed in the operating-room to the formaldehyde vapor, it would be clean enough for use, and he had never seen any harm from the employment of these instruments when so treated. It was necessary only thoroughly to boil the Jacques soft-rubber catheter for fifteen or twenty minutes to secure thorough sterilization. After having been sterilized in this way the catheter should be put in a sterilized tube, and the ends closed hermetically or with rubber caps. When it was necessary to carry around such instruments, they should be washed out with ether vapor and then immersed in a twenty-per-cent. carbolic-acid solution just before use. He used the same method when the cystoscope or endoscope had been kept for a considerable time after having been sterilized in the manner already described, and he was perfectly confident from clinical observation that such treatment effectually put the noxious germs to sleep. The great difficulty he had found was in properly cleansing the urethra and also the mouths of the ureters.

THE AFTER-CLEANSING OF THE URETHRA.—It had always seemed to him somewhat pathetic to see a surgeon take infinite pains in sterilizing the catheter and then pass it in through a canal teeming with germs of all kinds. It was his practice to fill the urethra with some sterilizing solution, and allow it to remain there for some time before the passage of the instrument. In catheterizing the ureters he had always taken the pains to sponge off the mouths of the ureters after having flushed out the urethra and bladder. An additional precaution was to flush out these parts with some sterile solution after the necessary manipulations had been carried out. Such procedures, he was confident, would do more to prevent and control infection than the more elaborate methods directed entirely to the sterilization of the instruments. He knew of no germs, except possibly the tubercle bacilli and the gonococci, that would do

any harm if they remained for a short time in a bladder that was entirely free from abrasion.

Dr. Frederic R. Sturgis said that the main point was cleanliness, and that was, after all, what was meant in practice by the term "sterilization." When the discharge was confined to the deeper portions of the canal, the first effort should be to determine its nature and that of the germs there present.

URETHRAL IRRIGATION IMPORTANT.—Because we were not able absolutely to sterilize the urethra was no reason why we should not carry out irrigation of the urethra. One of the best means of accomplishing this was to have the patient urinate. Failing that, irrigation might be employed either by means of a double catheter or by filling the urethra with a weak solution of permanganate of zinc or of argonin, by means of a fountain syringe. In the majority of instances irrigation of the urethra, he believed, was unnecessary, and under all circumstances it was impossible thoroughly to sterilize the canal. As a lubricant he used borated solution of glycerin or a borated solution of oil. The oil was first sterilized by dry heat, and then as much boric acid was added as the oil would take up. Small portions of this lubricant were kept in a tube stoppered with cotton, and at the conclusion of the day's work the remaining portion was thrown away.

TRAUMATISM STRONGLY PREDISPOSES TO INFECTION.—Dr. Eugene Fuller said that the sterilization of urethral instruments was still in its infancy. It was a matter of much importance, but in its consideration we should not overlook the large part played by traumatism in the production of infection. This had been well illustrated by one of the speakers, who had stated that the number of infections had been reduced fifty per cent. by abandoning the metal instrument, which was only another way of saying that traumatism had been responsible for much of the infection. It seemed to him that if the genital apparatus were perfectly healthy—if there were no seminal vesiculitis—it would be very rare for that tract to be infected by an instrument, unless the latter was very large or traumatism was produced. Traumatism of the deep urethra was a very common cause of infection. Every one was familiar with those occasional cases of epididymitis developing even after all the usual precautions had been taken to sterilize the parts. The secret was often to be found in the fact that the instrument had been forced through an obstructed deep urethra. Such an accident, from distention of the deep urethra, could be guarded against by previously ascertaining the condition of these parts by a digital examination through the rectum. There was comparatively little danger of infecting the prostate itself; the capsule was often tumefied and inflamed, but the focus of infection was primarily in the ejaculatory ducts. Tuberculosis was extremely likely to get a foothold at the prostatic sinus.

GENTLE MANIPULATIONS AND URETHRAL IRRIGATION ESSENTIAL.—Dr. E. L. Keyes said that every one, from the practical side, paid less attention to the antisepsis of the instruments than to other factors, and this seemed to him just. We did not usually interfere by the introduction of instruments into the urethra until the pool had already been defiled. The avoidance of traumatism and the irrigation of the urethra after instrumentation were the two most important elements. He returned always with fondness and affection to hot water and ordinary cleanliness, but occasionally diverged to silver, bi-chloride, or salicylic acid. He should probably continue to depend upon these elements until he was "gathered in." His results had been sufficiently satisfactory to make him feel that it was not necessary to place too much reliance upon asepsis, although the work done in this field was a commendable one and would have a good effect upon the profession at large. It was his practice to irrigate with weak solutions of Salicylic acid or 1 to 4,000 solution of nitrate of silver, particularly along the urethra and in the bladder, after instrumentation. This washing out the pool after it had been stirred up by the surgeon was a point in the technique which seemed to him more important even than the early cleanliness.

Dr. Ramon Guiteras spoke of the importance of using only catheters of the best grade. The best ones were covered with lacquer, both externally and internally; the second-grade were only covered externally; and the third or poorest were simply dipped into the lacquer, thus leaving numerous small crevices which made it almost impossible to sterilize the instrument. His own practice was to scrub and flush out the catheter immediately after use, then to boil it for five minutes, then to dry and store in closed glass tubes.

Dr. Ferdinand C. Valentine exhibited an apparatus for sterilizing the cystoscope, in which this instrument could be exposed to a temperature of 240 degrees C. without injury. It was his rule to employ irrigations of the urethra and bladder after the slightest instrumentation; he could not see how irrigation before the introduction of the instrument would be of any service whatever. He asserted his belief that it was in consequence of this routine irrigation that he had not had a single case of catheter fever for the past three years.

A DEADLY HEIRLOOM.—Dr. Martin, in closing the discussion, said that his purpose in presenting the paper had been, not to complicate the method of sterilization, as the speakers seemed to think, but to simplify it. The danger of using the metallic catheter had been forcibly impressed upon him by an incident in his hospital service. A physician from the South who was suffering from retention of urine was violently opposed to having a metallic catheter passed upon him, and when he was finally convinced that this must be done he made his will and prepared for the worst. To his astonishment he survived the ordeal, and then explained that in his family there had been a "hereditary" silver catheter, that had descended

from his grandfather, and that, according to the traditions of his family, every one upon whom that catheter had been passed had died within two months.—*Medical Record*.

[The best and safest lubricant is, in our estimation, olive or cotton seed oil, sterilized by steam in shallow test tubes plugged with cotton. This can be drawn into a small glass syringe previously sterilized by steam, and injected into the urethra. The urethra and not the catheter is lubricated.—EDITORS.]

CORRESPONDENCE.

EDITORS GEORGIA JOURNAL OF MEDICINE AND SURGERY:—

My attention has been called to an article in the October issue of your Journal alleging that the statement in my paper on "The Great Physicians of the Revolution" recently read before the American Academy of Medicine, that Benjamin Rush was "the only practitioner of medicine" whose name is affixed to the Declaration of Independence is erroneous in that "*four* other physicians signed that same document." In reply, permit me to say that I made the statement advisedly inasmuch as, while it is true that five physicians signed the Declaration of Independence, Doctor Rush was the only one of the five who was actually engaged in the active practice of his profession at the time and therefore the only practitioner of medicine as stated. Doctor Joseph M. Toner of Washington, D. C., deceased, original treasurer of the Rush Monument Fund, and the greatest authority on the illustrious physicians of the Revolution in the United States and donor of the large collection of the biographies and works of Rush in the Congressional Library, was the first to call attention to this fact.

ALBERT L. GIHON,

Medical Director U. S. Navy (retired).

City of New York, 25 November, 1897.

We print with pleasure the letter of Doctor Gihon in defense of his assertion "that Benjamin Rush was the only practitioner of medicine whose name is affixed to the Declaration of Independence," but we cannot accept Doctor Gihon's explanation as valid, even were we to accept the very fine spun differentiation between those who are actually practicing and those who are not practicing at the time, we would still hold to the validity of our argument, just as we consider Oliver Wendel Holmes, a star in the medical firmament although for many years before his death he had dropped the practice of medicine.

Doctor Gihon is mistaken in the statement that Rush was the only one of the medical men actually engaged in the practice of medicine at the time, for Doctor Lyman Hall, before and after signing the Declaration of Independence was actively engaged in the practice of

his profession. We will grant that while away from his home (St. John's Parish,) he did not practice, nor would it be expected of him, while attending the Continental Congress in Philadelphia, which being Rush's home did not interfere with his continuous professional activity. In so far as not being concerned in active practice *at the time* of signing the Declaration of Independence, goes, such a plea cannot be considered as valid grounds for stating that Rush was the only practitioner of medicine at that time. Doctor Hall was a long distance from his practice and could not be expected to continue it in Philadelphia.

Doctor Joseph M. Toner, who was the first to make the brilliant discovery that Rush was the only man actually engaged in practice at the time, may have been a great authority on Benjamin Rush, but evidently was not very strong on any of the other medical men. We cannot speak for any but Lyman Hall and our authority is Doctor Luther B. Grandy, the talented editor of the Atlanta Medical and Surgical Journal, who has written recently a most interesting monograph on "The History of Medicine and Surgery in Georgia," which we consider a valuable contribution to the Medical History of our country. We are satisfied with his conclusions on the subject, and in closing this correspondence must say that Doctor Gihon's defense cannot be accepted as well founded.

BOOK REVIEWS.

The Physicians' Visiting List for 1898, published by Messrs. P. Blakiston Son & Co., Philadelphia, is ready. We are pleased to see that there is a tendency to cut out some of the medical literature that has been finding its way into these books. Most of this matter is out of place here and uselessly cumpers the volume. What has been retained in this List will prove a convenience to the physician, but more still might be omitted. It is not, or should not be, necessary for the physician to carry about with him rules for treating asphyxiated persons, for reducing the readings of different thermometers, or for ascertaining the day when labor may be expected. The suggestions in metric prescription writing and the table of doses in Apothecary and Metric systems are useful in the attempt to popularize the latter. The List has the usual departments for daily records and various memoranda. It is bound in flexible cover and the price remains the same—25 patients a week \$1.00; 50 patients a week \$1.25; the same in two volumes \$2.00; perpetual \$1.25.

PROGRESS

—OF—

MEDICAL SCIENCE.

MEDICINE.

THE ACTION OF ALCOHOL.—In Hemmeters "Diseases of the Stomach," pages 280-81, we find the following summing up of the physiological action of alcohol:

"It may be said: (1) The effect of moderate doses of alcohol on metabolism is uncertain. (2) That on pepsin hydrochloric acid it acts favorably in quantities equal to one to two per cent. of absolute C_2H_6O , but beyond that it gradually inhibits this action.

(3) "On pancreatic digestion it acts unfavorably. (4) On salivary digestion it acts favorably, increasing the formation of maltose when present in amounts not exceeding five per cent. (5) On the peristalsis it has no influence one way or the other until the amounts exceed six per cent., when it begins to inhibit the motility. (6) Its effect on the rate of absorption is unknown.

"Speaking generally, alcohol might be dispensed with as a therapeutic and dietetic agent if it were not for its appetizing and stimulating qualities. In hyperacidity and hypersecretion, in ulcer and all chronic affections with augmented secretion, alcohol is contra-indicated. Healthy stomachs not rarely exhibit a certain adaptation to alcohol, and, naturally, upon such organs the agent has a different effect than upon the stomach of a teetotaler.

"Even Bunge, the well-known physiologist, who is a pronounced teetotaler, declares that we are justified in the use of any food or drink if for no other reason but that it tastes good, provided it does no harm."

MALARIAL PARALYSIS OF THE BLADDER.—Marion (*Semaine medicale*, 1897, No. 10,) reports six cases of paralysis of the bladder occurring in the course of malarial affections. The patients were all men, and mostly those past middle life. Sometimes the paralysis came on in the course of malarial fever; in other instances it was the first symptom of malarial infection. Once it had appeared, it did not subside until the malarial trouble was entirely cured, and then it disappeared as suddenly as it had set in.

THE DIAGNOSTIC VALUE OF THE SYMPTOMS WHICH FOR A LONG TIME PRECEDE THE MANIFESTATIONS OF GENERAL PARALYSIS.—At a recent meeting of the International Congress of Neurology, Psychiatry, Medical Electricity and Hypnology, a report of which is published in the *Progres Medical* for September 25th, Dr. Thomsen, of Bonn, said he thought the fact that general paralysis was often not recognized by practicing physicians, even in cases that were very evident to the

neurological specialist, might be explained by the following reasons: 1. The duration of general paralysis was often very much longer than was believed; a duration of five, seven, or ten years was not rare. 2. In the beginning of the disease the purely physical symptoms might prevail to such an extent that an erroneous diagnosis of neurasthenia or of cerebral syphilis might be made. Moreover, often very long and very considerable remissions occurred, during which all the psychical symptoms might disappear. The anatomical basis of paralysis was a process that underwent many remissions and attacked very different parts of the nervous system, and from this there resulted very pronounced differences in the symptoms and progress of the disease. When paralysis was manifest the anatomical process was well advanced. 3. It was not sufficiently known that certain characteristic symptoms of paralysis might precede the manifestation of the disease for a long time—in fact, for many years—as more or less isolated premonitory symptoms. The Argyll Robertson symptom, Westphal's sign, transitory ophthalmoplegias, paralytic or aphasic attacks, troubles of articulation, atrophy of the optic nerve and of several others less significant, belonged to these very important premonitory symptoms. In cases in which these symptoms were ascertained in taking the patient's history or on physical examination it was very often possible to make certain or probable diagnosis of general paralysis a long time before the manifestation of psychical symptoms. Taking them into consideration often prevented the possibility of confounding the disease with neurasthenia or cerebral syphilis. It was very important to make the diagnosis of general paralysis in the first stage of the disease.

M. Regnier of Paris, agreed with Dr. Thomsen that the greatest attention should be paid to the first physical signs of progressive general paralysis.

M. Antonelli of Paris, said that confusion in diagnosis might arise between general paralysis and syphilis in ocular troubles. He thought that in the beginning, however, this was not of great importance. Circulatory troubles of the papilla were often found in the beginning. Dr. Thomsen, he said, attached great importance to the physical signs; he thought this tendency too exclusive; moral and premonitory troubles should also be sought for, as cerebral asthenia was with difficulty distinguished from the simple troubles of general paralysis in the beginning.

Dr. Thomsen said that pupillary inequality was often found in other diseases also, as well as atrophy of the optic nerve and he thought these two symptoms were not sufficient in themselves. He said that he did not attach great importance to syphilis; he attached great importance to the physical symptoms, and he thought that a sure diagnosis could not be made when they were not present, for they were always found in the beginning, while the psychical symptoms might not exist.

THERAPEUTICS.

THIOSINAMINE:—Sinclair Tousey A. M. M. D. of New York, has an interesting paper on "Thiosinamine" in the New York Medical Journal November 6th, 1897. This drug is derived from oil of mustard seed and belongs to the same chemical group as urea: it is crystalline, does not keep well in aqueous solution, it costs about a dollar an ounce. Dr. Tousey uses it hypodermically in a solution made by dissolving ten parts of thiosinamine in one hundred parts of a sterilized mixture of water and glycerine, which keeps well, is non-irritating, is injected into the muscles, (triceps or glutei) once every third day in dose of 3 grains, under strict aseptic precautions.

Remarkable results have been obtained by its use in keloids, "inoperable tumors" and cicatricial conditions including deafness. It offers great promise in corneal opacities, it is being tried in the clearing up (or cure) of cataract.

In keloids the results are unquestionable. Dr. Tousey mentions the case of a man with large keloid, who was treated three years ago and remains entirely cured.

For such malignant growths as seem to offer no hope of benefit from operation its palliative influence is a reality. It has been used with great success in the treatment of urethral stricture.

It is to deafness particularly that we desire to urge a trial of this new method, being harmless in case of failure. It should be tried in that form in which the tympanic contents are incapacitated for vibratory transmission by bands and masses of fibrous tissue. The administration of thiosinamine, Tousey claims, "not locally but systemically, by the hypodermic method, acts here as elsewhere to produce the softening and absorption of cicatricial tissue." It would appear from what has been said that thiosinamine sought out the disease, in whatever part existing, and destroyed it. This sounds rather extravagant, but mercury, arsenic and iodide of potassium and a good many other drugs might be said to have the same power. The idea is that this drug sets up an unusual cellular activity in the blood and in the lymphatic and connective tissues which are the nurseries of leucocytes; and that lowly vitalized tissue (e. g., cicatricial tissue) is affected wherever it may be located.

THE ICHTHYOL GROUP AND DERMATITIS.—KLOTZ (Jour. of Cut. and Genito-Ur. Dis., October, 1897) writes of his experience during the last four years with strong solutions of ichthyol, thiol, and tumenol. Thiol has the same therapeutic advantages as ichthyol and costs about the same, but it lacks the well-known and rather disagreeable odor of the latter. One advantage which both possess that has not been mentioned by Unna, to whom their popular use is largely due, is the formation of a film upon the skin, if it is painted with the pure drugs, or a strong solution of the same, say fifty per cent. This film almost immediately forms, is not sticky, and affords an elastic covering which does not shrink, and is readily removed by water.

Tumenol is not affected by water, and hence is of service in the neighborhood of the glans penis, etc. Over such a film an indifferent powder, such as the stearate of zinc, should be dusted. These preparations will rapidly relieve pain, burning, and itching in the various forms of dermatitis, including erysipelas, herpes zoster, acute eczema, and acute exacerbations of chronic eczema. Even on moist surfaces no pain worth mentioning follows their application. Unna reported a case of lichen urticarius, in which he painted the entire body of a six-year-old child with a fifty-per-cent. watery solution of ichthyol morning and evening. No doubt its use would be equally gratifying in variola, measles, and scarlatina. In chronic inflammatory conditions of the skin Klotz cauterizes the affected parts with liquor potassii diluted to suit the case. A swab of absorbent cotton soaked in this solution is thoroughly rubbed over the diseased area, which is then washed with water, and dried, and finally painted with ichthyol.

FLUID EXTRACT MUIRA PUAMA.—Rebougeon, in a circular issued concerning this drug states that its source is *Acanthea virilis* Rebougeon, as named by him, and that it belongs to the *Acanthaceæ*. Among the Brazilian physicians, Monterio Baéna states the drug to be an analeptic; Almeida Pinto, an excitant and energetic aphrodisiac; Mello Moraes, a sovereign remedy in paralysis and dyspepsia; Peckholdt, an intestinal tonic in diarrhea. French physicians also state that its use is indicated ordinarily in neurasthenias, but particularly in digestive asthenia and in all forms of dyspepsia, as well as in sexual asthenia, uterine asthenia, as at the period of menopause, and in the asthenia of the circulation. The doses suitable for these purposes are from 15 to 20 drops of the fluid extract three to four times daily. The treatment may be prolonged for a considerable time, without any harmful by-effects being observed; nor is it necessary to increase the dose, the effect of the remedy on the nervous system not suffering any diminution by prolonged treatment.

SODIUM SULPHATE IN VOMITING.—Dr. Hofrichter, in Lützelstein, states (*Aerzt. Rundsch.*, VII, p. 260) that by means of the following simple prescription he has been able to check vomiting, of whatever origin, but more particularly that due to disturbance of gastric, intestinal, or ovarian origin:

Sodium Sulphate	5 gme.
Aromatic Tincture	3 gme.
Syrup	15 gme.
Water, to make.....	200 gme.

Dose: One spoonful.

For young children, the quantities of sodium sulphate and aromatic tincture may be reduced, while the 5 and 3 gme. respectively of the salt and tincture are best not exceeded for adults. The mixture is considered to be particularly beneficial, since by its means the use of narcotics is avoided.—*Am. Med. and Surg. Bulletin.*

SURGERY.

BUNION.—Parker Syms, M. D., of New York, has an excellent paper in the New York Medical Journal, Oct. 2d, '97, on this distressing deformity, and concludes as follows:

My own experience with these cases has taught me to be guided by the following principles: First, to employ different operative procedures according to the degree and character of the deformity.

Second. Never to operate during an acute attack of inflammation.

Third. Always to treat the deformity, and never operate on the bursa, for it will take care of itself after the cause is removed. The exceptions to this rule are the removal of the callosities from the bursa when they exist, and the incision of bursæ when they suppurate.

Fourth. Never to make the operation incision around the bursa or through the bursa for two reasons: first, because it would leave a scar where the shoe presses most; second, the operation would be through an area of infected tissue.

Fifth. Never use an Esmarch's bandage.

Sixth. Close the wound by suture, without drainage.

Seventh. Give careful attention to the after-treatment. Proper shoes must be worn, or a relapse will be probable.

I have found an incision about an inch in length on the dorsum of the toe thoroughly satisfactory. In a mild case, after retracting the tendon of the extensor proprius pollicis outward, I chisel off all the over-prominent portion of the inner side of the head of the metatarsal bone, removing as much bone as is necessary to do away with all protuberance. Then suture the wound and let it heal under one dressing. Usually the patient can walk about after the first week.

In more severe cases, where there is a marked adduction as well as lateral dislocation, I remove the head of the metatarsal with a chisel or bone forceps, and also cut off the prominent inner side of that bone. To resect the head of the metatarsal bone it will be necessary to divide the lateral ligaments and completely dislocate the toe. This can be done with ease and satisfaction through the simple straight incision I have described. It is necessary to remove so much bone that the toe will readily come into place and have no tendency to displacement. If this is not accomplished by the first ablation more bone must be removed.

The dressing must be carefully made so as to hold the toe in good position. I always secure the toe by means of pads and put a plaster-of-Paris bandage over the entire dressing. I use catgut sutures, and leave the original dressing on two weeks. I encourage the patient to walk in the third week. For some time the toe will be liable to displacement, and a good result can not be expected unless the after-treatment is carefully carried out. In my experience it is seldom necessary to do this resection of the head of the bone.

A thorough removal of the inner "condyle" will cure the majority of cases. The skiagraph will show this to be the case. It will also show that the simple removal of the end of the bone is not sufficient; there must be a removal of all the overprominent lateral mass.

THE DIRECTION IN WHICH CANCER OF THE BREAST SPREADS.—Gerota (Centralbl. f. Chir., Sept. 4, 1897) has made investigations to determine the course of secondary infection from cancer of the breast. He finds that the lymph-vessels are intimately associated with the branches of the internal mammary artery. This explains the occurrence of the infection of the retrosternal glands and the early adhesion of the pectoral muscles; and further, the occurrence of secondary nodules in these muscles. He also found that the glands of the thorax do not have independent sets of lymph-vessels but that these are in intimate relation with one another, which explains the spread of cancer from the right side to the left side, or the reverse,

HYPODERMIC TREATMENT OF SYPHILIS.—

R Hydrarg. bichlorid.

Ammon. chlorid.....**℥i.**

Sod. chlorid.....**gr. lxij.**

Aquæ dest**gr. xx.**

Mix and filter. Add white of one egg dissolved in distilled water, **℥ ivss.** S. m **xx.** subcutaneously.

This is the equivalent of one-sixth grain of bichloride. Objections raised against this method are: Unnecessary pain, subcutaneous infiltration, large indurated and painful swelling, inflammation, abscesses, stomatitis, pytalism, disturbances of circulation and respiration. The advantages claimed are: 1, Accuracy of dose; 2, exactness in intervals between doses; 3, rapidity of action of medicine; 4, small amount of mercury and the short time needed to effect a cure; 5, the constant, never-ceasing effect of the mercury day and night; 6, the personal supervision of the physician; 7, the certainty of the patient's getting the right medicine, of its being properly administered at regular stated intervals, and of his inability to get your prescription refilled or to give your knowledge to a friend or sell it to some charlatan; 8, profit to the physician and economy to the patient on account of the saving of the drug bill of four years. The doctor with this method is sure of two very important things, his fee and his patient's gratitude for his speedy cure—quick delivery, so to speak; 9, absence of gastro-intestinal disturbances; 10, last, though not least, quick diagnosis in questionable cases.—Dr. Dabney, *New Orleans Medical and Surgical Journal*, April, 1897.

MUSTARD AS AN ANTISEPTIC.—One never goes into a house, or at least a locality, in which mustard cannot easily be procured, and my custom is thoroughly to rub and scrub my hands with a mixture of

green or other soap, corn meal, and mustard flour, for about five minutes. After rubbing thoroughly into all the crevices and creases of the hands and nails by aid of a nailbrush, one may be absolutely certain that his hands are sterilized, no matter what he may have been doing previously. I have no hesitation in proceeding from an autopsy to the operating-room, if I may thus protect my hands. Used as indicated, the mustard leaves no unpleasant sensation; and one may feel that by the time it produces unpleasant tingling or rubefaction of the skin its essential oil has done its desired work as an antiseptic. I have discarded all other means of preparing the hands, and in several years' use of mustard in this way have never been disappointed or had the slightest reason to question its effectiveness. I might add also that it is an admirable deodorizing agent, and will take away from the hands all offensive odor of dead or dying tissues and all redolence of iodoform.—Dr. Roswell Park, *Buffalo Medical Journal*.

THE TREATMENT OF TRIFACIAL NEURALGIA BY LIGATION OF THE COMMON CAROTID ARTERY.—From a survey of the literature, together with experimental observation upon dogs, Ricketts (*Journal of the American Medical Association*, October 16, 1897, p. 772) concludes that ligation of the common carotid artery, in the absence of pathologic conditions, is attended by but little danger. It is safer, more certain, and attended with fewer serious consequences than any of the intracranial operations for the relief of trifacial neuralgia. The cause of this condition seems to be either congestion or anæmia; when congestion, ligation is the more certain to bring relief. The close proximity of the ganglion to the bone upon which it rests and the weight of the brain upon it, together with localized meningitis, seem to explain in some degree the occurrence of anæmia and congestion of the ganglion. The cellular structure of the ganglion is not changed by ligation of the carotid artery, so that no such alteration can be assigned as the cause of relief from pain. As the size of the blood-vessels on the side ligated does not seem to be diminished at the end of eight weeks, the cause of relief lies evidently in the fact that the blood pressure is much lessened, inasmuch as lowering of arterial tension in any congested area affords relief. However uncertain the cause of the pain or of its relief, ligation of the common carotid artery must be recognized as an established operation in the treatment of trifacial neuralgia.

[We do not think that Dr. Rickett's conclusions are well founded, and would not advise any surgeon to attempt this method until some results upon human beings have been published—*The Editors*.]

THE SOURCES AND DIAGNOSIS OF PYURIA.—Dr. Howard A. Kelly, of Baltimore, at the recent meeting of the Southern Surgical and Gynaecological Association read this paper. He began by stating that if he were asked what subject in the entire range of medicine and surgery he considered it most important to bring

prominently before the profession at present he would probably reply, *Pyuria*. The subject is important on account of the great number of undetermined cases under treatment, and on account of the progressive nature of some forms of the disease, as well as on account of the facility with which the diagnosis can now be made with better means of investigation. *Pyuria*, of course, signifies merely the presence of pus in the urine; this may be in large or in small quantities, and may proceed from any part of the urinary tract from the external urethral orifice up to the cortex of the kidneys. The investigation of the *pyuria* is an analytical one—taking the symptom and trying to trace its origin. The best way to investigate a *pyuria* is to begin by making an examination of the urinary tract, following an anatomical order, proceeding from below upward. The history of the case, the microscopical and bacteriological and chemical examinations of the urine must be carefully made, and all facts ascertainable by palpation must be elicited first. The direct investigation then proceeds in an orderly manner, beginning with the external urethral orifice, where Skene's glands may be distended with a drop or two of pus; the urethra may be in a state of intense inflammation and even ulceration, affording sufficient pus to yield a decided sediment in the urine. Sometimes a suburethral abscess may pass unnoticed for many months, in spite of the fact that it contains from a teaspoonful to a tablespoonful of pus. The vesical sources of *pyuria* are from a cystitis, including a trigonitis or inflammation of the trigonum; foreign bodies, creating a cystitis; ulcers, associated with a cystitis or tuberculous in their nature. These affections will all be readily recognized by making cystoscopic examination of the patient in the knee-breast position, through a simple cylindrical speculum. By this examination the cystitis will often be found to be well localized and in patches, which may be readily treated by direct topical applications; upon removing a foreign body, the cause of a cystitis, the *pyuria* disappears. Ulcers seen through the cystoscope may be treated with strong solutions of nitrate of silver, curetted, or cauterized. There are also a number of extra sources of *pyuria*, and these arise most frequently from tubal and ovarian abscesses breaking into the bladder, across the base of a broad ligament. If the *pyuria* does not come from the lower urinary tract it must then come from one of the ureters or kidneys; a telltale blush around a ureteral orifice often marks the side from which the pus issues. The author has found *pyurias* from the upper urinary tract proceeding from strictures of the ureter with a gonorrhoeal, tuberculous, or other infection. The site of the stricture and the source of the *pyuria* may be readily located in these cases by passing a ureteral catheter—a metal one for the low strictures, or a flexible one for those above the pelvic brim. Renal *pyurias* are, after all, the commonest of all, and the author finds that these are most frequently caused either by a calculus in the pelvis of the kidney, or by a tuberculous pyelitis, or by a hydronephrosis which has become infected.

Such pyurias are often the occasion of large amounts of pus in the urine, appearing either continuously or intermittently. By passing a renal catheter well up into the pelvis of the kidney, the pus may be evacuated and the pelvis washed out. If the pus is too thick to flow through the catheter, it may be thinned out by injecting a little fluid. By making an orderly investigation of this sort the pus is traced to its origin, and the source of the disease is discovered and treated and the cause eliminated, if possible, just as we would seek to investigate the source of the contamination of a body of water by taking a boat and traveling up the muddy stream until we had located the point at which it entered the main body and until we found that above this point the water was free from contamination. The methods proposed are safe in careful, practised hands.

A NEW METHOD OF GENERAL ANÆSTHESIA.—Under this heading there appears an interesting communication by Dr. M. L. Maduro in the *Med. News*, Nov. 27th, and in the same journal Dec. 11th, a letter from Dr. Willy Meyer on the same subject. Prof. Schleich of Berlin has made interesting studies on the relation of the boiling-point of anæsthetics to their rapidity of absorption and elimination, and discovering that there was an intimate relation between the boiling-point and the temperature of the body, undertook experiments to discover, by a physical process, a mixture which would satisfy this relation and materially lessen the dangers of general anæsthesia.

He found that when the boiling-point is higher than the temperature of the body the amount necessary to narcotize is less than when the boiling-point and temperature are equal. Again, when the boiling-point is higher than the body temperature the deeper the resulting narcosis. The boiling-point of chloroform is 65 degrees C.; of ethyl bromid, 38 degrees C., and of sulphuric ether, 34 degrees C. Thus, it may be understood why less chloroform than ether is necessary to narcotize, and why chloroform narcosis is deeper than that of ether. Schleich has proved that anesthesia with ethyl bromid, the boiling-point of which is 39 degrees C. (nearest temperature of body), would be an ideal anesthetic were it not for the fact that the advantage of boiling-point is not sufficient to overcome the dangerous action of the bromin.

After making various mixtures of the different anesthetics, Schleich concluded that it is possible to change the boiling-point to the desired degree, and that the mixture will continue to boil without decomposition as long as its temperature is not considerably higher than its determined boiling-point.

Mixtures of ethers, the boiling-point of which closely approaches the temperature of the body, absorbed during respiration will boil when expired with the air in the lungs. It is possible to mix ethers having different boiling-points in various proportions and thus obtain a desired boiling-point; and further regulate it according to the proportion of each used.

After various experiments upon animals, Schleich succeeded in

preparing the three following mixtures, which constitute the new method.

Mixture I. (Boiling-point, 38 degrees C.)

Chloroform, 45 parts.

Petroleum ether, 15 parts.

Sulph. ether, 180 parts.

Mixture II. (Boiling-point, 40 degrees C.)

Chloroform, 45 parts.

Petroleum ether, 15 parts.

Sulph. ether, 150 parts.

Mixture III. (Boiling-point, 42 degrees C.)

Chloroform, 30 parts.

Petroleum ether, 15 parts.

Sulph. ether, 80 parts.

The mixtures may be prepared by the anesthetizer. The only thing to remark in preparation is that the petroleum ether should have a boiling-point between 60 degrees C. and 65 degrees C. Schleich uses petroleum ether because he found in his experiments upon animals that no ethereal substance can be administered in such large doses without causing serious disturbances. It, however, seems to mitigate the action of the chloroform contained in the mixture and to dilute the other substances without interfering with their action. The method of administration differs little from that commonly employed in giving other anesthetics, inasmuch as the greatest care in the amount used should be observed. Small doses will lead to slow but sure results. Enough stress cannot be laid upon this point which, as we know, is the common mistake in the administration of anesthetics. With Mixture I. 30 grams should be an average dose for an operation lasting twenty minutes or less. Schleich has manufactured a special mask; but he has now discarded it, to use with equally good results the practical American idea of the paper-and-towel combination.

If a more prolonged operation is undertaken, a higher boiling-point is selected (Mixture ii. or iii.); for then the small excess which cannot be immediately eliminated with the expired air will induce a profound sleep with a very small dose. With this method one can regulate the narcosis by the respirations alone. Schleich is enabled to have his patients who are only under a brief narcosis immediately awake after the completion of the operation; for if Mixture I. is used (boiling-point equals temperature of the body) only a few free respirations are necessary to awaken the patient.

Dr. Maduro says: "After having witnessed quite a number of operations at Schleich's clinic, I was amazed at the rapidity with which the patients both succumbed to and recovered from the anesthetic. A response to a question could be elicited immediately after the mask was removed from the face. Laxity of the abdominal muscles was complete after an average of five-minutes' narcosis. The stage of

excitement was generally absent, even in alcoholics. Cyanosis or nausea were never present. Vomiting occurred about as frequently, never more so, as with the use of chloroform. There was no salivation or bronchitis."

Schleich relates a case of bronchopneumonia in a child who previously had had diphtheria, and whom he had occasion to anesthetize. The child was not made worse, but recovered completely from the anesthetic within forty-eight hours. In febrile cases, narcosis has been induced without any resulting disturbances when the 42 degrees C. mixture was used. The pulse was always of good tension, never increased, and sometimes decreased. After the employment of this method of anesthetic patients awakened more refreshed than after the administration of ether or chloroform.

Schleich has, up to the first part of this year, collected some 360 cases in which he has used his method of narcosis with uniformly good results. All that he claims for it has been upheld by many of his associates abroad. There is little or no doubt in my mind that this new departure in scientific up-to-date anesthesia will revolutionize the old methods, and will prove its efficiency by its general adoption in the near future.

OBSTETRICS AND GYNÆCOLOGY.

THE CLAMP TREATMENT OF THE UMBILICAL CORD.—In the *Presse Medicale* for September 8th there is an article on this subject in which the writer states that the treatment practised in M. Bar's service is very simple and very sure, and it should be tried by practitioners. It consists essentially in replacing the thread of the old ligature by a hæmostatic forceps.

The forceps is applied as soon as pulsation is no longer felt in the funicular stem, that is, after the foeto-placental circulation is arrested, which, as is known, is a gain of nearly three ounces of blood to the child, for that quantity it would have been deprived of by an immediate ligature.

The forceps is placed vertically to the axis of the cord, close to the umbilicus, in order to leave under the instrument only a very small part of the cord; this is an essential condition in order to obtain rapid desiccation. The handles of the forceps are applied afterward on the abdomen, and the cord is cut as near as possible to the forceps. After hæmostasis is obtained, a dressing of sterilized absorbent cotton is applied entirely around forceps in order to separate it completely from the abdominal wall; a rather long compress surrounds the whole, and the child is then dressed.

The forceps is removed at the end of twenty-four hours, and the segment of the cord will be found to have undergone very important modifications. Flattened transversely, it has become thin, laminated, transparent, and like parchment, and on its two surfaces will be seen the impression of the grooves of the forceps. This horny layer is removed with a pair of scissors close to the skin, and an antiseptic

gauze dressing finishes the operation. Occasionally a drop of a reddish serosity which still fills the umbilical vein is seen after section, and sometimes blood stains the dressing after the laminated segment is cut, but it is limited there.

After the horny layer has been cut there remains in the umbilical cicatrix a small stump which is often dry; this falls of itself on the fourteenth or fifteenth day after birth, leaving in a large number of cases a small reddish ulceration which is easily seen by separating the lips of the umbilical depression. This easily becomes infected if care is not taken to continue the antiseptic dressings until cicatrization is complete. The dressings are frequently soiled by urine and faecal matters, and should be renewed twice a day at least. Until cicatrization is complete, the child should not be bathed.

PUERPERAL FEVER IN PRIVATE PRACTICE IN ENGLAND.—Dr. Charles J. Cullingworth presents in *Lancet*, March 6, 1897, p. 643, some alarming statistics in his inaugural address before the Obstetrical Society of London showing conclusively that puerperal fever, far from having diminished in private practice in England and Wales, has considerably increased. He cites the percentage of deaths from puerperal fever from 1847 to 1895. In 1847 it was 1.5 per 1,000 births, remaining below 2, with only seven exceptions, until 1881. During and since that year, the mortality has varied from 2 to 3.3 per 1,000, the latter figure being reached in 1893. If, as he says, the figures err, they err in the direction of truth, not in excess of it. In London the total death rate from childbirth has considerably diminished. The diminution is due, however, not to any appreciable lowering of the mortality from puerperal fever, but to a lessened mortality from the accidents of childbirth. In the provinces, the total death rate remains practically unaltered; but whilst there has been a diminution in the mortality from the accidents of childbirth, the mortality from puerperal fever has increased to such an extent that, instead of being accountable for less than a third of the total mortality, it is now accountable for more than one-half. The prevalence of puerperal fever he shows to be dependent, not on the density of the population, but on the character of the medical attendance. In some districts ignorant midwives are largely employed, and often spread the disease broadcast.

Two maps of London are given: one showing the density of the population, the other the relative incidence of puerperal fever. The lack of correspondence in the two maps is very marked. Hampstead heads the list in the largest proportion of cases of puerperal fever, while St. Giles, Strand and St. Luke are at the other end of the list, and St. Martin in the Fields has reported no deaths from the disease from 1891 to 1895.

Why is it, he asks, that while puerperal fever has become a thing of the past in our lying-in hospitals, there has not been a corresponding diminution in private practice? It is because of the ignorance of

of midwives and the carelessness of medical men in antiseptic details, both of which should be remedied.

VAGINAL LIGATION OF THE UTERINE ARTERIES FOR FIBROIDS OF THE UTERUS.—Goelet takes up this operation, which he has previously advocated, to give the results of a riper experience with it. He still strongly advocates the operation, but restricts it to interstitial growths that have not extended beyond the level of the umbilicus, and to small superperitoneal growths which spring from the wall of the uterus below the fundus, and are without extensive adhesions through which the tumor may obtain nourishment. He has not seen a tumor completely disappear after the operation, but has uniformly seen a decrease in the size of the tumor, and the disappearance of symptoms. He insists upon the necessity of dividing the artery between the ligatures in order to secure its complete obliteration. The technique of his operation is as follows: The preparation of the vulva and vagina is as careful as for vaginal hysterectomy. The cervix is dilated, the uterine cavity is thoroughly curetted, washed out, and packed with iodoform gauze. A traction ligature is then inserted through both lips of the cervix. With this the uterus is drawn down and over to one side, so as to expose the left vaginal vault. A semicircular incision, about an inch and a half long, is made through the vaginal wall at the cervico vaginal junction to the left of the cervix. With the index fingers the vaginal tissue is carefully separated from the broad ligaments at the anterior angle of the incision, which frees the bladder and pushes the ureter to one side, out of reach. Posteriorly, the broad ligament is carefully separated in the same manner without penetrating the peritoneum. By passing one finger in front and the other behind, the base of the broad ligament is grasped between them, and the pulsation of the uterine artery can be felt. It is carefully isolated, seized with a broad ligament clamp and drawn down. A curved aneurism needle, carrying a stout catgut ligature, is passed up along the finger as a guide and around the artery to the outer side of the clamp and tied. A second ligature is passed around the artery nearer the uterus to the inner side of the clamp, and when this is tied the clamp is removed and the artery is divided between them.

The cervix is now drawn over to the opposite side, and the same manœuvre is repeated on the right side. The wounds are now irrigated with a one-per-cent. solution of lysol, and the vaginal incisions are closed with a continuous catgut suture. The vagina is packed loosely with iodoform gauze, which is renewed after forty-eight hours. The operation is done with the patient on the back in the lithotomy position. A broad perineal retractor with a short blade is used. Sometimes a narrow-bladed lateral retractor is employed, being inserted through the vaginal incision to hold the ureter to one side.

The needle which he employs for carrying the ligature around the artery is one of special design, and is made for him by Messrs. J.

Reynder & Co. It is set at a more obtuse angle to the shaft than those ordinarily made, and the point is semisharp instead of blunt, but it is not sharp enough to wound the artery.

The patient is confined to bed for ten days or two weeks. There is usually no elevation of temperature following the operation, and the wounds heal promptly if strict asepsis has been preserved throughout.—*Am. Journ. Gynec. and Obst.*

THE USE OF STEAM WITHIN THE UTERINE CAVITY.—Pitha, in the *Centralblatt für Gynäkologie* No. 22, 1897, reports the results of his observations in Pawlik's clinic, extending over two years and including 46 patients. The deductions are also based on examinations of six uteri removed from four to fourteen days after the application of steam.

The technique is quite simple: A small kettle, fitted with a thermometer, is connected with a double-current uterine catheter by means of rubber tubing; a wooden handle on the instrument protects the hand of the operator. The temperature is raised to 105—115 degrees C., and after the steam issues from the holes in the catheter the instrument is cooled to avoid burning the vagina, and is then introduced into the uterine cavity. The steam is then allowed to escape for one minute. It condenses within the uterine cavity, where its action is really due to the heat from the catheter and the hot water. Narcosis is not necessary as most of the patients bear the application easily. Active uterine contractions followed, and in some cases were quite violent, attended with reflex vomiting, but there were no other unpleasant consequences. Sloughing occurred, and was not completed before the fourteenth day, the endometrium not being entirely regenerated until four weeks had elapsed, showing that the cauterizing effect was quite as profound as after the use of the Paquelin. Twenty-eight patients, with hemorrhagic endometritis, treated in this manner were discharged cured, and ten with hemorrhage following abortion; in the latter, decidua remains were first removed with the curette before applying the steam.

The use of this agent is also highly recommended in cases of malignant diseases of the corpus uteri.

The advantages claimed for this method of intra-uterine cauterization are the ease and rapidity with which it can be effected in a clinic, the immediate hemostatic effect, and the deep slough which is caused, as well as the freedom from untoward results. The after-treatment is simple. The patient is kept in bed until the slough has entirely separated, the vagina being irrigated and tamponed lightly with iodoform gauze. No intrauterine injections are given. Among the disadvantages the writer mentions the unequal character of the cauterization and the fact that the after-treatment is more prolonged than after curettement. He is not willing to assert "vaporization" is preferable to the latter operation.

PEDIATRICS.

THE TREATMENT OF PROLAPSE OF THE ANUS IN CHILDREN.—F. Schmey (Centralbl. J. Kinderheilk., 1897, ii, 41) says that prolapse of the anus in childhood is quite a severe and dangerous affection, for the reason that large hemorrhages frequently occur from the prolapsed mucous membrane, which is usually in a condition of venous stasis. This tends to debilitate the child.

In one of Schmey's cases the rectum prolapsed not only during each stool, but even when the child urinated, and latterly seemingly without any cause whatever. In addition there was much bleeding of the prolapsed mucous membrane, visibly reducing the patient's strength. Prolapse of the rectum is usually found in quite young, badly nourished children. The author claims to have found marked symptoms of rachitis in all children treated by him for prolapse of the anus, and has directed his treatment accordingly. Up to the present time the usual treatment consisted in surgical measures, in the application of a bandage, the excision of spindle-shaped strips of the folds of skin which converge in radiating lines to the anal orifice, or a cauterization of the skin surrounding the anus with the hot iron. Others advocated the subcutaneous injections of strychnine in the neighborhood of the anus, chemical cauterization or the ligature, and excision with narrowing of the anus. The greater number of these measures are not safe; for example, numerous cases of death, due to pyemia, have occurred following cauterization of prolapse of the rectum.

Relying on the observation that all children with prolapse of the anus presented distinct signs of rachitis, Schmey put them on anti-rachitic treatment, and in this way claimed to have attained exceptionally brilliant results.

His formula is the usual one for the exhibition of phosphorus:

R_x Phosphori, 0.01;

Ol. jecoris aselli, 100.0.

Ft. Sol.—Sig. One to three coffee-spoonfuls daily.

Generally the prolapse was perfectly cured after the use of one bottle of this medicine, and did not appear again. He offers the following resume: Prolapse of the anus in children, according to my observations, is a symptom and a sequel of rachitis, and its cure is easily and permanently accomplished by the administration of oil of phosphorus.—*Pediatrics*.

CALOMEL IN THE GONORRHEA OF THE NEW BORN.—A. Pukalow, (Dietskaja Medicina, 1897, p. 184), tried calomel in fifty-seven cases of gonorrheal ophthalmia with very satisfactory results. Cleaning the eyes with a two per cent. solution of boracic acid and drying them with absorbent cotton, he applied calomel with a camel's-hair brush to the everted eyelid. The next day the discharge was greatly diminished and also the edema of the eyelids. After two or three applications the eyelids are no more closed in the mornings and then

he uses the usual astringents. In seven days he attained a cure, but in one chronic case it took 14 days to bring the disease to an end.

The advantage of calomel over nitrate of silver lies in the entire absence of any danger; It can be used by the mother herself, while we would not trust nitrate of silver in the mother's hands.

Calomel does not produce a scab, as nitrate of silver, and as a powder it penetrates easier into the disintegrated affected membrane and reaches better the infectious element.

LEMON JUICE AS A PREVENTIVE OF THE GONORRHEA OF THE NEW-BORN.—Szawelski (*Gazeta Lekarska*, No. 38, 1896) saw during his stay at Prof. Pinard's clinic in Paris, the application of lemon juice in gonorrheal ophthalmia with remarkable results.

Several drops of lemon juice are put in the conjunctival sac. It is entirely harmless and is at hand in every household. He reports a striking case with good results.

THE TREATMENT OF MALARIA IN CHILDHOOD.—A Feuchtwanger (*Therapeut. Monatshefte*, 1896, No. 8, 439), during five years' practice in Palestine, observed a great many cases of malaria, and endeavored to discover a substitute for quinine; nevertheless, he was compelled again and again to return to quinine, as the latter gave, after all, the most reliable results.

To children he principally administered quinine bisulphate, which is better borne by the stomach than the simple sulphate, and is therefore of greater utility, although containing less quinine. In very young children (8 days to 2 months old) he frequently ordered an ointment of quinine:

R: Quinine sulph..... 2.0;
Adeps suill..... 40.0.

M Ft. ungt. Sig.—To be rubbed into the axillary and inguinal regions, three or four times a day.

In cases where the bisulphate of quinine was not well borne internally, suppositories were resorted to containing double the dose, i. e., a child five months of age was ordered a suppository containing 0.1 quinine sulphate or muriate five times a day. In rare cases in which these suppositories caused tenesmus, he administered the quinine in rectal injections, rubbed up, in the same dose as in suppositories, with the yolk of an egg. In neuralgia of malarial origin, in older children, valerianate of quinine was used by preference. In two cases of pernicious malaria he had recourse to hypodermic injections of muriate of quinine. The children were in a comatose condition, with tardy pupillary reaction, severe vomiting, extensive enlargement of the spleen and liver, marked icterus, and severe hemoglobinuria. After three injections of muriate of quinine in a little diluted muriatic acid (the ages of the children were 10 to 12 years) the hemoglobinuria vanished as though by magic, the vomiting was controlled by ice pellets and mustard plasters to the region of the stomach;

lukewarm baths with cold affusion to the head, followed by an ice-bag, were ordered for the comatose state. To avoid a relapse he followed up the treatment for a number of days by smaller doses of quinine and for a long time afterwards decoctions of calisaya bark were continued. In spite of this, relapses are not rare, and a malarial cachexia is developed which sometimes leads to grave conditions. In these cases he sometimes obtained good results by a systematic arsenic treatment.

THE USE OF IODINE AND THE IODIDES IN PEDIATRICS.—Comby (*Archiv. f. Dermatologie u. Syphilis*, 1897, xxxviii, 285) finds in iodine one of the best and most certain antiseptics and a good remedy to influence the nutrition. Iodism is considered a rare occurrence in children, and in very young infants it may be altogether excluded. The reason for this is the rapid elimination of iodine in childhood. This has been experimentally demonstrated.

He next discusses the indications and contraindications for the administration of iodine. Iodine is considered a specific in heredity syphilis and in the tardy symptoms of acquired syphilis. In the initial and secondary stages mercury alone is sufficient; in the tertiary stage, iodide of potash is indicated. An exception is made in the hereditary syphilis of the new-born in whom the exhibition of potash should be begun early. Not only should positively syphilitic children receive iodine, but all who have suspicious symptoms, as coryza, exostoses, etc., or a cachexia which appears without apparent cause, or when the child is prematurely born, or the mother has had frequent abortions. In convulsions, pseudoparalysis, meningeal symptoms, etc., it is also indicated. The administration of iodine in children with gummy tumors, disease of bone, perforation of the soft palate and hemoglobinuria, is, of course, clearly indicated. Finally, in all parasyphilitic symptoms (Fournier), as hydro-cephalus, cerebral tumors, partial epilepsy, etc., iodine is valuable. From the reports on the use of iodine in the various diseases of childhood the best results have been obtained in actinomycosis and ring worm. Favorable results were followed in varrucae planae of the face and hands and in pityriasis versicolor. Lastly, it is employed with advantage in all forms of stomatitis and in diphtheria of the skin. Contraindications for the internal use of iodine in children are tuberculosis, cachexia (not due to syphilis), and itching skin eruptions e. g. — urticaria, eczema, prurigo, acne, furunculosis, etc.

TO DISGUISE THE TASTE OF CASTOR OIL.—Pour 15 to 20 grm. of castor oil into a glass of milk and warm the mixture, frequently stirring. In a few minutes an emulsion is formed which may be sweetened with syrup of orange peel. In this form the oil loses its disagreeable taste, and besides smaller doses are needed to obtain the desired result.

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ORIGINAL COMMUNICATIONS.

**SOME RECENT DISCOVERIES IN THE ANATOMY AND
PHYSIOLOGY OF THE NERVOUS CENTERS.**

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The physician in active practice has little time, and often less inclination to keep abreast with the work done in laboratories throughout the world, until some part of that work reaches the point at which it offers him some new means of diagnosis, or some new therapeutic measure. The investigations into pure science have few charms sufficient to tempt him to master the technical terms that have grown around the medical sciences in the last few years, and even though he should wish to learn from advanced investigators, it is difficult to know where to begin. In the following pages the writer intends to sketch in broad outlines some of the more recent discoveries in the anatomy of the central nerve mass, and to suggest some relations that may exist between the structures of the nerve cells and the mechanism of the reflexes. No claim for originality is made, as the facts described are common property to the scientific world, and nothing is done save to condense into a few pages the matter now scattered through many journals and not readily accessible.

The structure and functions of the nervous system have been objects of interest ever since histology and physiology have been studied, but the difficulties and complexities of the subject prevented much progress until within the last half-century. Research has also been hampered by the notion that thought and intellect are beyond our ken, that "the mind" is intangible and different from "the body" in every way—that, indeed, the physical organism is a burden and incumbrance to it. This idea, borrowed from the metaphysical school of "dualists," still exerts influence, and many are loth to say with

Haegel that thought is the secretion of the brain as bile is of the liver, though if any other view be taken, it will follow that the action of the higher centers is totally different from that of any other organ. It is said that thought is immaterial and therefore cannot be produced as are secretions from glands, but light and sound are physical forces, which, when received by the eye or ear, become transformed into nervous or intellectual impulses, and, therefore, it is not inconceivable that thought may be convertible into the commoner forms of energy. Lesions of the brain produce derangement of moral and intellectual attributes and show these to be dependent on the proper functional activity of the ganglion cells; and it is thoroughly unscientific to argue that because a thing is unknown it is therefore unknowable. However obscure may be the intellectual functions of the brain, it is a fatal error to assume that nothing can be learned about them. Our knowledge of the anatomy of the central nerve masses is scant, of its physiology slight, and of the relations of its several parts to one another we know next to nothing. We are not certain how far it controls the rest of the organism, nor what is the nature of that control; and until some of these problems be solved it is hopeless to seek the solution of the more difficult ones.

The nervous system in the higher animals is regarded as divided into two groups—one of these comprising the brain, spinal cord and the nerve fibres proceeding from them, while the other consists of a number of ganglia lying on either side of the spinal column, connected with one another by inter-ganglionic fibres, and sending out filaments to various parts of the body. The first group is called the cerebro-spinal system and in general governs the voluntary acts, mental and physical, while the second group is called the "sympathetic" system and presides over the vegetative processes, or the nutritive powers of particular organs. The functions of this system are still obscure and in the last decade much attention has been paid to it by surgeons. Anatomically, the ganglia and associated filaments contain many non-medullated fibres—the "fibres of Remak," and, as a rule, they do not give the sensation of pain when imitated. Often the first intimation given by a lesion is the breakdown that has been shown by Otis and others to follow an apparently insignificant injury, such as a lacerated cervix or a stricture of the urethra.

Using the symptoms presented by diseases of the brain and cord as a basis, the earlier neuro-pathologists mapped out areas on the brain to which they ascribed definite functions, but, as this was based on insufficient data, much of it was fanciful, as may be seen to-day in the pretended science of phrenology. The contradictions and manifest absurdities of the phrenologists left so unfavorable an impression, that when Hughlings Jackson began to publish his views they were regarded as ingenious but visionary speculations, devoid of truth or utility, but when a method was devised by which small areas of the cortex might be stimulated directly, Jackson's statements were confirmed and cerebral localization put on a firm basis.

The study of modern neurology brought into use the word "center," and, as it bears several meanings, it may be well to explain what is meant by it in its various senses, for on a clear comprehension of this word depends much of the rest. We recognize (1) centers whose action proceeds *from* them, such as motor or trophic centers; those that originate an impulse and send it out through certain nerve fibres; (2) centers that receive impulses from without, as do the sensory centers, and (3) those known as *reflex centers* that receive certain impulses, and, as a consequence, transmit outward other impulses, frequently of a different nature. The following definitions may make this clear, though perhaps not absolutely accurate:

A *motor center* is a cell or group of cells that originate impulses of such a nature that, when transmitted through the proper channels, a certain muscle or group of muscles will respond. For example, on either side of the fissure of Rolando, near the summit of the hemisphere, lies the "center" for the legs—an impulse originating there and conducted uninterruptedly through the motor tract, will cause a contraction of the muscles of the lower extremity on the opposite side.

A *sensory center* differs from a motor in that it *receives* an impression from without instead of transmitting one. Thus the motor center of the tongue would *send out* impulses to the lingual muscles whereas the taste center *receives* sensations of a particular sort from the same region, and may or may not make any disposition of it.

There is a function of the sensory centers that has no parallel among those that control movements, namely, the power of interpreting the impressions they receive. In this respect the center is both telegraph instrument and operator; it both receives the impulse from the periphery and interprets it, and this power of interpretation is called the "psychical" function as distinguished from the simpler one of mere reception. One of these powers may exist without the other. In the classic experiments of Goltz, in which he washed away portions of the cortex of a dog, he found that after destroying the psycho-optic center, the animal failed to recognize objects. It was not blind; it saw and avoided obstacles, but it failed to notice exhibitions that previously had greatly excited it, nor was it cowed by a whip.

There exists a third variety of center whose action is even more complex. This class comprises what are known as the "reflex" centers, and are really the only ones to which the term "center" strictly applies, for the impulse originates in the motor and terminates in the sensory centers; they are termini rather than centers. With the reflexes the case is different. An impulse comes to it from without and another, often of a totally different character, is sent out in response, and thus it differs from either a sensory and motor center while combining qualities of both. It is true that at times certain sensory and motor centers become associated so as to

work together in a manner that closely resembles reflex action, as in the obedience of a soldier to words of command, but this is the result of much patient training and is readily lost, whereas the closure of the eyelids when something passes near the eye is innate and almost beyond the control of the will. This latter is a "reflex" act and is effected by a "reflex center," and the object of this paper is to describe the results of some of the recent investigations into the nature of this action.

The earliest conception of the mode of action of the nerves, was that they were tubes through which flowed the "vital spirits;" but when electricity became known it was thought that nervous energy was electrical. The structure of the peripheral nerve fibres seemed to bear this out, and a comparison of the system of nerves in the body with the wires of the telegraphic system of the country is used almost universally by teachers.

As suggested above the centers are both operators and instruments, and the passage of the nervous impulse along the fibres presents many analogies with the passage of electrical impulses along the wires. The vibrations of the atmosphere striking the ear drum are converted in nervous impulses, as the same sound waves are converted into electric impulses after striking the diaphragm of a telephone, and it may be that the retina will give us a clue to some instrument that will transmit a visual image. We are still ignorant of the nature of nervous impulses and the facts at command may be summed up in a few words.

If a nerve be cut across and a delicate wire run from the periphery to the cut surface, a weak current of electricity will flow through the wire from the periphery to the cut surface. If the two ends of a cut out segment of nerve be joined, there will be a current running longitudinally through the nerve, but in a direction opposite to that in which the impulse transmitted by the nerve goes; i. e. in a motor nerve this longitudinal current runs from the muscle toward the spinal cord, in a sensory nerve from the cord toward the surface. When the nerve is excited these currents are diminished or even reversed. Space does not permit a full account of the electrical variations, the "reaction of regeneration," the "electrotonic" condition and the like, but it is well-known that the reaction of a nerve to electricity is complex and easily altered.

The stimulus normally transmitted from a center is intermittent. When a stimulus reaches a muscle there is a moment of rest, then a contraction, then relaxation. This cycle requires time, and if a second stimulus be applied before the muscle relaxes, a more pronounced contraction follows. If the stimuli follow very rapidly the relaxation becomes imperceptible and the muscle goes into a tetanic condition. The relaxation is present, but so rapidly do the contractions follow that the muscle emits a musical note. This occurs when a muscle is firmly contracted by voluntary effort, and if the ear be applied to it the "muscle tone" may be heard, which shows

that the normal nerve stimulus is intermittent. The similarity of this to a faradic current is striking.

Within the past few years our conception of the structure of central nervous mass has been radically changed. The improved staining methods introduced by Cajal and Golgi have shown the nervous cells more perfectly than was possible by any other means, and have thrown light on much that has been obscure. We now know it to be made up of a number of units known as *neurones*, to each of which a distinct function is probably assigned. A neuron is composed of a nerve cell and its processes, one of which is the nerve fibre. The cells and their prolongations ramify extensively, but each neuron is distinct and separate from every other one and the processes never anastomose, however closely they may intertwine. It was formerly believed that different nerve cells communicated anatomically, but such is not the case—each neuron is a isolated unit.

The cells are classified according to the character of the prolongations or processes running from them. If these be long, the cell or neuron is said to be of Deiter's type, if short, of Golgi's type. The fact that the processes are used as the basis of classification shows them to be important, and they merit careful description. The cells of which the brain and cord are largely composed, differ from one another in the various portions of the mass, and those of the same region often differ in structure. The fully developed ganglion cells are of two classes: one class being composed of large, nucleated protoplasmic cells of varying shape and often containing pigment, while the other class consists of small, nuclear cells with little or no protoplasm around the nuclei. From the cells proceed prolongations of protoplasm that branch and divide like limbs of a tree, from which resemblance they are called *dendritic processes* or *dendrites*. In addition there is one long process called the *axis cylinder process*, which soon becomes medullated and forms a nerve fibre. The neurons are developed from the neuroblasts of the ectoderm, and each neuron develops from its own neuroblast, thus having from its inception the independence that it retains through life. For example, a neuron of the cortical motor area is formed from the neuroblast as a "germ-cell" with thick processes which become slenderer as development proceeds and are evidently nutrient. One of these processes becomes very long, pushing its way to the periphery and forming a continuous thread of nerve matter from the ganglion cell in the cortex to the final termination. It is important to remember that in this course *no other cell takes part*, but that from the beginning each neuron is complete in itself. As a rule, those that are to functionate first are the first to become medullated.

Besides the axis cylinder process, a varying number of other prolongations stream from the ganglion cells. These are the *dendritic processes* or dendrites, and split up into a fine arborization close to the cell itself, making a tangled network of fibrillæ like twigs on a bush. The dendrites from neighboring neurons become intertwined as do the branches of different plants in a thicket, but however

closely they may interlock there is no more anatomical blending in the one case than in the other. The fibrils of each neuron remain separate and distinct.

As stated above the axis cylinder processes may be long or short. If they are long the cells from which they proceed are of Deiter's type; if short, the cells are of Golgi's type, but, in both cases, they terminate by splitting into a fine arborescense. As the axis cylinder process passes toward its destination it gives off branches which, in turn, divide into minute fibrillæ. The processes from Golgi's cells end so close to the cells that they appear spindle-shaped, and are called "Golgi's spindle cells." As with the dendrites, so are these branches intertwined with the terminal twigs of other neurons and in communication with them, but by proximity only—in no case do they blend into one.

The functions of these prolongations vary. In a motor neuron it is likely that an impulse of some sort—that known as "the will" for example—comes to the cell over one or more of the dendrites, is converted into a motor impulse by the cell and is sent out through the axis cylinder process. With a sensory neuron the process is reversed. The sensory wave travels to the cell through or over the axis cylinder process while the cellulifugal impulse, if any, passes outward by way of the dendrites.

We are now in position to see the mechanism of the reflexes. The dendrites from a sensory and a motor neuron will interlock as cogs in a gearing or as twigs in a jungle. The terminal fibres may be in contact, or at all events they are in close proximity, and the excitation of one neuron is transferred by means of these filaments to the other. The nature of this transference, like the nature of the excitation, is yet unknown. It may be a molecular vibration or it may be some action similar to the phenomenon of induction in electricity. The many analogies between electrical and nervous phenomena, and the well-known fact that electrical currents normally flow through the nerves and are altered by physiological stimuli, appear to indicate a similiarity between these two forms of energy. It is therefore conceivable that some similar process goes on in a reflex center, and if so, the mechanism would be explicable. Suppose the center to be composed of one or more couples of neurons, each couple being made up of a sensory and a motor neuron, whose dendrites intertwine. If the sensory neuron be stimulated, the impulse goes to its ganglion cell over the axis cylinder process and then passes out into the dendrites. By means of something analogous to induction, an excitation is set up in the dendrites of the motor neuron, thence conducted to its ganglion cell and, being conveyed by the motor axis cylinder, stimulates the proper muscular response.

Much still remains to be learned, and this paper gives but an outline of a few of the later developments. The trophic functions are still unknown as are many of the most important operations of the brain; but enough has been accomplished to make us hopeful of what the future has in store.

ACOUSTICS.—LAWS OF SOUND.—THE AURICLE.

LIMIT OF PERCEPTION OF MUSICAL TONES BY THE HUMAN EAR, TELEPHONE, AUDIOMETER, MICROPHONE, ROENTGEN RAYS.

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No physician can treat the defects and diseases of the ear without a scientific knowledge of Physics, Acoustics, Electricity and the use of delicate and accurate apparatus.

ACOUSTICS, (derived from the Greek verb ἀκούω, "to hear") treats of the science of sounds, their cause, nature, and phenomena. Sound is produced by the stationary vibrations of sonorous bodies; it is propagated by progressive wave motions of elastic media, usually the air. Sound waves are best transmitted by the same medium; when traveling through different media they are weakened. Reflections of sound waves occur, if in their passage through air they impinge upon more solid bodies. Through the air sound waves are transmitted at the rate of 376 metres per second; through water 1435 metres; while in solids, capable of vibrations, they are propagated from 7 to 18 times faster than through air.

A series of irregular vibrations is called a noise; but if the vibration be a succession of rhythmic and harmonious impulses, a musical tone. The ear is capable of appreciating the three fundamental qualities of sound, viz: loudness or intensity, pitch, and timbre, quality or "klang."

The intensity or loudness of a tone depends upon the greater or lesser amplitude of the vibrations of the sounding body. Thus, the vibrating string of a musical instrument emits a feebler sound when its excursions are smaller. (The intensity of a sound corresponds to the degree of illumination or brightness of a light.)

Pitch depends upon the number of vibrations which occur in a given time. (The perception of pitch answers to the sensation of color in the case of the eye.)

Quality or timbre ("klangfarbe") is a property of sound. It is the peculiarity of a musical tone by which we are enabled to distinguish it as coming from a particular instrument, and it gives individuality to each human voice. Thus the same note struck on a piano and sounded on a violin differs in quality or timbre, but may have the same loudness or pitch. Timbre depends upon the peculiar form of vibration, or the form of the sound wave emitted by the sonorous body. (There is no analogy for it in light.)

Weakening of sound takes place according to the law of inverse squares and is in a great measure prevented if the sound waves are so confined as to prevent lateral diffusion. By transmitting sound through a tube with a smooth interior surface, this is accomplished, and the waves thus confined may be transmitted great distances with very little diminution of intensity; a fact that is utilized in speaking and hearing tubes.

Biot observed the transmission of sound through the empty water-pipes of Paris, and found that he could hold a conversation in a low voice through an iron tube 3120 feet in length. The lowest possible whisper, indeed, could be heard at this distance, while the firing of a pistol into one end of this tube extinguished a lighted candle at the other. The transmission of sound thus illustrated, is similar to that of light and radiant heat. They, like sound, are wave motions.

Like sound they diffuse themselves in space, diminishing in intensity according to the same law. Like sound when sent through a tube with a reflecting interior surface, they may be conveyed to great distances with comparatively little loss. Every experiment on the reflection of light has its analogue in the reflection of sound. Light, like sound, is excited by pulses or waves; and lights of different colors, like sounds of different pitch, are produced by different rates of vibration. But in its perception of sounds of various pitch the ear exceedingly transcends the sensations of the eye to colors; for while the ranges of the former are over eleven octaves, but little more than one octave is possible to the latter.

The Auricle is shaped somewhat like a hearing trumpet, and collects sounds and transmits them along a canal—the External Auditory Meatus, which acts as a resonator or resounder and intensifies the note. It is then conducted to the Membrana Tympani, or drum membrane, and thence along the chain of moveable bonelets or ossicles through the internal drum membrane, to the stapes or stirrup-bone, which fits over the oval opening or window, the sounds are then conducted to the vestibule and the Cochlea. The Cochlea or snail's shell assists in the analysis of sound vibration sent to the brain.

Vibrations are recognized by the brain as sound, which defines and arranges them in their proper order. It should be borne in mind, however, that although vibrations *produce* sound they are not sound; but that sound is a *sensation* recognized by the brain as the result of transmission to the ear through an elastic medium of the vibrations of a sonorous body. Sounds are propagated through the air in waves, which may be transmitted simultaneously in different directions without destroying each other. This is illustrated by the fact that in complicated pieces of music played by an orchestra, a practised ear can readily distinguish the sound of each instrument.

It has been estimated that the number of complete vibrations to produce a distinct musical sound, in persons having acute sense of hearing, may vary from twenty for the lowest to thirty-six thousand five hundred per second for the highest.

Helmholtz has fixed the lower limit at sixteen vibrations and the higher at thirty-eight thousand vibrations per second; a range of about eleven octaves. The practical range of sounds used in music is comprised between tones of forty vibrations and four thousand vibrations per second which amounts in round numbers to a range of seven octaves. Human speech has a range of about five octaves, i. e.: from tones 128 to 4,096 vibrations per second (c to c₅).

A pure musical note is very rare, but a fundamental note is associated or accompanied by tones of a higher pitch or overtones.

EXPERIMENTS ON THE LIMIT OF PERCEPTION OF MUSICAL TONES BY THE HUMAN EAR.—In many cases of ear disease it is desirable to have some means of determining the acuteness of hearing, both for ascertaining the present condition of the hearing apparatus, and for the establishment of data that shall be sufficiently accurate to define and record the progress of the patient from day to day, and to establish a standard of comparison with other cases. For this purpose we may use tuning forks of various rates of vibration per second (V. S.)

But for experimentation, the steel rods of Dr. Kônig, of Paris, are in many respects the most scientific instruments for clinical use. The rods used by myself are made of choice white, tempered steel, and have proved perfectly satisfactory. They are held suspended by a silk thread either close to the ear or at a definite distance, say thirty-five feet, from the patient, and then tapped on the end with a little steel hammer, which produces a clear, ringing bell-like tone. Kônig's rods are two centimetres in diameter and from two and a half to ten centimetres in length, and they yield tones that regularly increase in pitch from tones of twenty thousand to sixty thousand vibrations during a second. The method of examining the hearing by means of Kônig's rods only determines the limit of the power of perceiving musical tones of high pitch, and is not intended to supersede the use of the tuning fork, of the watch or of the human voice; recognition of the quality and of the intensity of sounds is more readily determined by the voice or watch than by means of the rods.

In Savart's classical experiments with the toothed wheel, the lowest distinct musical note was found to be one of eight vibrations per second; the highest was estimated at twenty-four thousand vibrations per second. Helmholtz fixed the lowest at sixteen (when lower than this there was a succession of knockings or concussions), and the highest at thirty-eight thousand. Vierordt estimated that the highest musical note discernible by the human ear was one of forty-eight thousand (V. S.), and Despret's seventy-three thousand seven hundred (V. S.)

Dr. Blake found the perceptive power of the normal ear for the tones of high pitch to vary considerably with age, being greatest at the age of twelve or thirteen years, and diminishing in advanced life.

From a number of experiments made some years ago, and those made since, I have obtained some interesting results. The fact should not be overlooked that the conducting power of the air is greatly affected by its temperature. If the air be heated it expands and becomes lighter, and sound passes more readily through it than through cold air. The presence of moisture in the air also diminishes the hearing power. In using Kônig's rods I take the precaution to have their temperature at different observations to correspond as nearly as possible, in order to prevent any source of fallacy from their change in shape. The membrana tympani was always previ-

ously examined, and if any morbid condition existed it was stated in the notes recording the observation; and if the auditory canal was obstructed by cerumen or any foreign body, it was removed previous to the use of the rods. Observing these precautions, I have found that the average of each set of my experiments, while they varied slightly from each other, were generally higher than those of Dr. Blake. In one case sixty thousand vibrations were heard by a gentleman twenty-six years of age, who was a skilled musician, and another gentleman, with a trained ear, distinctly heard the same tone; in quite a number fifty thousand were readily detected; in others, twenty-five thousand represented the extreme limit of perception. Many who were found to fall below the average had never suffered from ear trouble, and believed their hearing to be perfectly normal. It would appear, therefore, that there are a number of persons who are naturally insensible to sounds above a certain pitch, just as there are some who cannot distinguish between rays of light of different colors—that there is a Daltonism of the ear as well as of the eye.

The analogy existing between the ability to recognize colors and that of discriminating between different musical tones has been frequently observed, and Dr. Pliny Earle has collected an interesting series of cases, in which the two defects co-existed in the same individual; that is, persons who were "color blind" also had "no ear for music." However, the color blind are not always deaf to high notes.

Apart from these exceptional cases, I have concluded from a number of observations that education of the ear has much to do with the acuteness of hearing. This is so true that a person who first tests his hearing with the rods may find that he is unable to distinguish tones higher than a certain pitch, say one of thirty thousand vibrations per second; but in the course of an hour or so, if he practise with the rods continually, he may be able to hear a tone of thirty-five thousand or more vibrations per second without special difficulty.

Cases divide themselves in their acuteness of perception of high tones into three classes: (1) Ordinary patients, or hospital cases from the lower walks of life, all of whose perceptions are more or less dulled, the ear being no exception. (2) Cultivated and refined people, who have no special musical training. (3) Skilled and professional musicians.

Physicians whose ears have been trained in auscultation and percussion, so as to recognize nice distinctions of pitch of sound in the chest, would form a class intermediate between (2) and (3). The fact that my observations have been, in this series of experiments, made largely upon professional men will explain why the general results are higher than those of other observers. I have in another place called attention to the painful character of the impression made by these high notes in some cases. Indeed, an

annoying tinnitus may result and continue for several hours or longer, from the use of these rods as well as from the telegraph and telephone apparatus.

In the following series the subjects were all scientific men, either physicians or students. The rods were held within two inches of the ear; their temperature was about 70 degrees F. The observations were conducted in a room remote from noise, weather cloudy and drizzling:

	YEARS.	INITIAL.	VIBRATIONS.
FROM 20 to 30	22	G. H. R.	50 000
	23	A. DE. W.	50 000
	24	D. J.	55 000
	24	J. M.	40 000
	24	J. M. S.	35 000
	24	H. F. S.	55 000 M
	25	J. M. B.	50 000 M
	26	J. E. F.	40 000
	26	A. O.	45 000
	26	H. P.	60 000
	28	I. O.	40 000
	29	J. S. T.	40 000
	29	C. M. T.	45 000
	30	F. W.	40 000
	30	J. E. W.	45 000
	30	C. S. T.	40 000
	30	W. S. L.	50 000
	30	G. A. N.	30 000
FROM 30 to 50	33	J. McC. *	35 000
	36	J. R.	40 000
	39	W. K.	50 000 M
	47	J. A. M.	40 000
	48	R. M. S.	40 000
ABOVE 50	52	L. T.	45 000
	57	L. T.	30 000

M. stands for musician.

* Had ear trouble when a child; there was opacity and sinking in of the membrane.

It is of interest to note that in several of the cases where a marked difference was observed between the two ears it was in favor of the left, with the single exception of a gentleman who heard a tone of sixty thousand V. S. with his right ear, and who could hear no higher tone than one of fifty-five thousand with his left.

The marked difference between the limit at twenty-two and that at fifty-seven years is believed not to be due simply to senile thickening of the membrana-tympani, but also to a gradual narrowing and change of shape in the auditory meatus, alterations in the middle

ear, diminution of conducting power of the bones, and diminished receptability of the labyrinth and auditory nerve incident upon advancing years.

RECENT PROGRESS IN ACOUSTICS.—The progress of the Acoustics has been marked by several brilliant discoveries and practical applications within the last few years, chiefly made by Americans. The most important was the talking phonograph of Mr. Edison. When some years ago I examined the talking machine of Faber of Vienna, with which he succeeded so admirably in producing articulate sounds; and had made for a patient an artificial organ of speech perform the same function as the corresponding organ in our vocal apparatus; it seemed as if man could go no further in solving the problem of making a machine speak by the application of physiological and acoustic knowledge, but I was more surprised when by speaking into a funnel resting on a rotating cylinder on which there was tin (now wax or hard rubber disks) my words and music were recorded after me, and by reversing they were repeated word for word. The cylinder could be stored away for future reference and use.

Other discoveries were those of Henry, Reis, Gray and Bell; the first the discoverer of the principle, and the other three the appliers and modifiers of the "telephone" for practical purposes, thus making it available even for the use of the deaf mute. A case in illustration, a son of a Mr. Saunders, *born deaf*, has been in charge of Professor Bell for several years, and under his training he has learned to articulate sounds and talk with facility. This man is now capable of speaking with his parents in distinct language and by telephone. This conversation, by means of wire over a distance of a mile, presents a combination of wonders well calculated to impress the mind with awe, and illustrates the astonishing progress of the age in scientific discovery. Probably no instance of this nature ever occurred before in any country.

The earliest experiments for the transmission of musical sounds to a distance, by means of electro-magnetism, were made by the late Professor Henry and Phillip Reis, of Friederichdorf, Germany. Reis' apparatus was capable of producing only one of the characteristics of sound, viz: its pitch. It could not produce different degrees of intensity or other qualities of tones, but merely sung with its own voice, which was not unlike that of a toy trumpet. In the spring of 1874 Mr. Elisha Gray, of Chicago, invented a method of electrical transmission, by means of which the intensity of the tones, as well as their pitch, was properly produced. Subsequently Mr. Gray conceived the idea of controlling the formation of electric waves, by means of the vibrations of a diaphragm capable of responding to sounds of every kind traversing the atmosphere, so arranged as to produce these vibrations at a distance. When this was accomplished the problem of transmission and reproduction of articulate speech over an elastic conductor was practically solved. In the summer of 1876 Professor A. G. Bell, of the Boston University, exhibited at the

Centennial Exhibition in Philadelphia a telephonic apparatus, by which articulate speech could be transmitted over an electric circuit, and reproduced at a distance with some degree of distinctness. The sounds produced were still quite weak, and could only be transmitted at a short distance. Then followed the application of an electric magnet, instead of a voltaic current, by Professor A. E. Dolbear, of Tufts College, Ohio, using the same instrument for both sending and receiving, which increased the volume and distinctness of the sounds. Many other modifications of the speaking telephone have been devised, but they all possess certain common characteristics embodied in the original, and are essentially the same in principle, although differing somewhat in matters of detail. All employ a diaphragm at the transmitting station, capable of responding to the acoustic properties of the air, also a diaphragm at the receiving end, to be likewise thrown into vibration by the action of the magnetizing helix.

Professor Hughes has made another adaptation of the principle involved in Edison's "carbon-transmitter," and has given a fresh impetus to the experiments of the small army of amateur investigators who follow closely in the wake of the individual pioneers occasionally opening up new and unexplored paths in the mysterious realms of science. By means of his invention, vibrations of the air, which are quite inaudible to the human ear, may be made to increase the electrical conductivity of a piece of delicately adjusted carbon, so that it will transmit over a wire synchronous electrical pulses, causing a metallic diaphragm in the receiver at the distant end to emit a sound so loud as to be painful to the ear.

Professor Hughes has also devised an audiometer to measure accurately the power of hearing in a deaf person, and to afford a means of exactly testing the hearing at intervals when a patient is under treatment. It consists mainly of an appliance in which the telephone is adapted by means of the inventor's microphone key to convey the most delicate gradation of sound (up to absolute silence) to the ear. It is worked by two Leclanche's cells, and the intensity of the sound is regulated by moving a coil placed on a graduated bar between two primary coils.

THE APPLICATION OF ACOUSTICS OR LAWS OF SOUND TO THE DIAGNOSIS OF OBSCURE DISEASES OF THE EAR.—Functional Examination: We employ the aural speculum, forehead mirror, Politzer's air bag and the catheter for the physical examination of the ear. If these are not sufficient to give us the clue to the diagnosis in the chronic form of otitis, this is to be obtained by careful tests of the hearing. Indications of depression of the membrana tympani are of value and should not be neglected, but when absent, greater weight must be placed on testing the hearing power of speech, tuning-forks, etc.

According to Wolf, speech has a compass of five octaves, from E to C. The deepest tone is that of *r* lingual; the highest is *s*. The greatest strength of tone, and the most timbre belongs according to

Wolf, to the vowel *a*, which can be heard at 252 m., and the smallest to *h*, a sound heard at 8.4 m. distance. The vowel sounds are generally perceived more surely and at a greater distance than the consonants. Ordinary conversation is used, as well as whispering. The average normal hearing distance for whispered words in a quiet room is 25.26 meters—during the ordinary noise of the day, 20 meters. The determination of the registers for instrument tones is by ærial conduction, and the tones go by the names of their discoverers: Schwabach, Rinne, Weber, Galton, or Kônig's rods.

The first has found that where obstruction exists in the conducting mechanism, the absolute period of bone conduction exceeds that of the normal ear.

What is termed the test of Rinne, is based on the fact that the normal ear perceives a vibrating tuning-fork, held before the auditory canal of the ear, about twice as long in time as when the shank of the fork rests upon the mastoid process. If the canal were occluded, or where an obstructive lesion was present within the tympanum, it was found that after the fork had ceased to be heard in front of the ear, its vibrations could still be recognized when the handle of the instrument was brought in contact with the mastoid. In arriving at these tests it is well not to use a tuning-fork of a pitch lower than 512 vibrations. If we use a very low-pitched fork, the patient will not hear it, but only feel it.

E. H. Weber's experiment proved that a vibrating tuning-fork placed against the teeth or on a point of the cranium, is heard with normal ears better when the external auditory canals are closed than when they are open. His method is to place a vibrating fork upon the skull and observe whether the sound is heard more or less loud by the ear under examination than by the other ear. If a tuning-fork placed on the vertex be heard better by that ear which is the deafer to ordinary sound-conduction through the air, it may be concluded that defects exist in the sound conducting apparatus on that side. Such defects are more apt to be benefited by treatment than are those affecting the sound-perceiving apparatus.

Then we have a very shrill whistle, invented by Galton, of England, and brought into use in 1878 for testing the perception of high notes. It consists of a small covered cylindrical whistle, which is lengthened and shortened by a valve moved by a micrometer screw. The lower part of the valve is in connection with a hollow cylinder which extends over the cylinder of the whistle. On the side of the whistle is a scale to show the tens, and around the hollow cylinder a scale to show the single number. The blowing of the whistle is done by a small rubber balloon.

Besides the Galton whistle we have employed for testing the upper limit of the perception of hearing, a series of Kônig's cylinders of steel, of from 20,000 to 100,000 vibrations per second, with intervals of 5,000 vibrations. Testing with the high-pitched tuning-forks, Galton's whistle and Kônig's rods will yield good results only when

the difficulty of hearing affects both sides, and is of long duration. The perception for these high tones decreases with old age.

THE PHONOGRAPH IN DIAGNOSIS OF DISEASES OF THE EAR—This instrument was brought forward with the full expectation of being of great utility in diagnosis and treatment of diseases of the ear, and numerous experiments were published lauding its value. We tested it and found it of no practical use. Dr. George F. Fisk published his method which he found satisfactory. We wrote a letter to the doctor desiring him to give us his views on the subject, which he promptly answered as follows:

"In answer to your note I would say that my expectations with regard to the phonograph have not been fulfilled. It is true I have used the method a good deal. I keep the old cylinders with interest, and know no other method so exact so far as it goes. The trouble is that the voice of the phonograph is not the human voice and that nothing will take its place. I grow more and more hopeless as to any cure for the bad forms of middle ear trouble, especially the forms of sclerosis, and do not find any difficulty even without the phonograph in determining a loss in the hearing power." These results have been confirmed by the experiments of several careful observers. In theory it would seem all right in the case of deafness also, but I regret to state that all clinical experience does not bear out the claims of the phonograph in the treatment of deafness from changes in the middle ear. See report of one hundred cases treated by various mechanical measures.*

"When the deafness depends on labyrinth or nerve changes can we hope to again bring into activity a nerve by means of massage applied through the ossicles? I do not think this possible, for since phonographic massage will lessen the activity of the auditory nerve we could certainly not by the same means restore the nerve to its original activity."—*Eliot*.

*"Aural Massage" by Condensation and Rarefaction of the Air in the External Meatus and Middle Ear: Its Value in the Treatment of Various Diseases of the Ear. By Laurence Turnbull, M. D., Ph. G., Aural Surgeon to the Jefferson College Hospital, Philadelphia.

HOW WE TREAT CONSUMPTIVES TO-DAY.

By PAUL PAQUIN, M. D.,
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Read before the Tri-State Medical Association of Alabama, Georgia and Tennessee, at Nashville, Tenn.,
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From the very beginning of the application of antitoxin in diphtheria, tetanus and other infections, it was hoped that it would also be beneficial in tuberculosis, and to that end many investigators have labored faithfully in all parts of the world. Maragliano, in Italy, sought first a remedy in the natural blood serum of the ass, and later, in the latter part of 1885 or 1886, he reported the results of his work with the serum of the same animal, previously treated to obtain immunization. Prior to this, however, Richet, Hericourt and others in

Europe had used the natural dog blood serum in various forms of the disease. I began to immunize horses against this affection in 1894, and in January, 1895, reported the first clinical results with the first immunized horse blood serum ever obtained or used, so far as I am able to learn. Many criticisms, kind and unkind, and unwarranted reflections, scarcely dignified, followed, and some have stooped to public persecution; but the work has progressed. To-day, amidst the violent denunciations of a few enemies, I have the consolation of finding my humble researches respectfully considered by some of the leading scientific lights of Europe and America, and the results obtained with it attested by conscientious clinicians of the highest reputation in many quarters of this and other countries.

In spite of the beneficial effects of climate and of other forms of treatment in vogue, and the vaunted claims of recoveries said to have been produced by a hundred different processes, the plague still claims a seventh of the death-rate at least. Such an excessive fatality due to one plague warranted the beginning and continuation of my experiments, and warrants investigation by the whole profession, in any legitimate line, for the discovery of a treatment that shall subdue suffering, reduce the mortality and arrest the progress of inherited conditions of tuberculosis.

Tuberculosis may effect all the organs of the body, but its seat of preference is in the chest. The respiratory organs of this cavity offer, apparently, the best field for the germs to grow, and more beings succumb to pulmonary phthisis than to all the other forms of tuberculosis together. It is this form I shall consider chiefly in this paper. It is the kind we see every day. In the first place, what is the nature of pulmonary phthisis? Let me say first of all that it is, unfortunately, nearly always a complicated affection, even in the very early stages. Very early in the development of the disease we find associated with the bacilli of tuberculosis a number of other germs, among which some are as deadly and as destructive as the specific microbe. Comparatively speaking, tuberculosis is essentially a slow malady, even in acute cases. Its primary lesions consist of one or several local points of inflammation, due to the growth and multiplication of the bacilli, which occurs at the expense of the cells, their secretions and products, among which the germs are lodged. During this development toxins are generated. They are poisonous, as the name indicates, and they cause the death of the cells around them, and these, eventually, soften and finally become liquified. It is thus that we obtain the first formation of caseous matter of pure tuberculosis which, in such conditions, is not mixed with the products or pus of the ordinary septic or pyogenic germs. During this first evolution of a case of tuberculosis, at its initial point of infection, a protective envelope is formed by Nature's recuperative forces and it is soon such as to surround the first lesion, thus circumscribing it and limiting the pathologic phenomenon. Then we have formed a tubercle which may vary in size from that of a point of a pin to that

of a walnut or larger, the most voluminous nodules being usually the result of the junction of several small tubercles or their coalescence. If a section is made through tubercles at various stages of their development it will be found that from the consistency of hardness at the beginning they gradually soften and, so far as germs are concerned, they first contain only the bacilli of tuberculosis. But when softening of these tubercles takes place to the degree that their envelope ruptures, there is offered to the germs which are inhaled a means of ingress into diseased tissues which are a fit soil for the latter's development. This is the beginning of mixed infection. From that time on the expectoration of a patient not only demonstrates the existence of consumption germs, but large numbers of other pathogenic microbes, such as the streptococcus, staphylococcus, the tetragenus and numerous other complicating organisms more or less effective in their power to destroy tissues. Such complications seem to be of tremendous power in the causation of softening of large areas of lung tissue and in the production of cavities. Then we have to deal, not only with the associated microbes and the lesions they produce, but also with the toxins which they generate, and which, separately or collectively, or, perhaps, in chemical combination, produce various forms of toxemia and alter the blood and nervous system, and, as a consequence, affects the whole organization banefully in a more or less pronounced manner.

Tuberculosis in the early stages, before serious microbial complications arise, produces as a rule a comparatively mild fever, the temperature seldom rising above 101° F. When the complications appear the temperature rises to 102 F., 103 F. and higher, according to the degree of infection, the extent of the lesions produced and the quantity and quality of the toxins. It is not necessary for the purposes of this paper to go deeply into the pathology of tubercular developments. I merely desire to impress you with the importance of recognizing the nature of the lesions and other pathologic conditions, in a general and special way, before applying any remedy, and also the necessity of considering the peculiarities of each individual case, in order that the disease be not treated only on a general plan supposed to be applicable to all, but rather that each individual be treated on its merits, so to speak. It is not enough to treat consumptives as such. One should treat the patient against the general and special diseased conditions existing. The local lesions and the special effects thereof; the direct results of tubercular development upon remote organs or systems; the general depression dependent on such conditions; the individual characteristics and mode of life; the inherited predispositions, all these should be considered before instituting treatment. The disease yields or resists very differently, according to the nature of the infection, its effects and the peculiarities of the patient's individuality. It is needless to say, for instance, that patients who have inherited the elements that predispose to tuberculosis do not offer the same physical resistance to the destructive

power of the germ of this disease as do those unfortunates who have contracted the malady by accident and have more vital energy.

In concluding this preface to the discussion of the treatment of tuberculosis I wish to say a word with reference to the method of producing the antitoxins which are most suitable for the treatment of consumption.

As stated above, my first public print on the subject of serum in tuberculosis occurred early in 1895. At that time I was not ready to publish in detail the *modus operandi* of the laboratory processes. Since then I have, repeatedly, at various medical meetings and through the medical press, explained more or less fully the various methods of immunization which I have tested from time to time. In 1894 I realized that the simple use of naturally liquid toxins in the treatment of the horses used for the production of antitoxin was not sufficient to produce complete immunity, because it became manifest that not only the liquid toxin (viz, tuberculin,) of the germ of consumption was poisonous, but also that the structure of the parasite contained poisonous elements of a deadly character, and possibly other substances capable of causing reaction. Thus it was that very early in my work I used not only tuberculin for injections of the animals used to produce antitoxin serum, but used besides the structure of dead germs or germs with vitality purposely lowered and then mixed with sterile water. I have used the live germs also, following injection of these solutions. Thus it will be seen that at the beginning I used chiefly tuberculin to immunize the horse, gradually adopting methods and material which insured more and more the effects of reaction upon both the liquid poisons and the germ substance. The tuberculins I used at the outset were produced by recognized authorities, such as Koch's Laboratory and the Bureau of Animal Industry, in Washington. By the mixture of these liquid toxins and the germs, whether modified or not, all the elements of the tubercle bacillus entered into the immunizing agent. But a question of importance with respect to the reaction of the animal to these injections arose during that work, and it was this: What proportion of the toxic structure of the germs were absorbed by the economy of the horse? It seemed desirable that the greatest quantity of the most virulent quality of all the tubercle toxins be absorbed in order to produce the greatest reaction and, therefore, the highest immunity. Koch, of Berlin, supplied the key to the production of more perfect immunizing material when he brought forth his new tuberculin, which he specifies under the name of TR. This, according to the publications which have appeared, is nothing more than part of the structure of the germs of tuberculosis, rubbed in a mortar or broken by other mechanical means into an impalpable powder and precipitated by centrifugal power. For use, this precipitate is mixed with sterile water or glycerine, or both, and may be preserved by the addition of a minor proportion of formaldehyde or 3-10 to 4-10 per ct. of tri-kresol (as is the case for the preservation of the serum itself).

The object of this pulverization of the germ structure is to liberate the toxin as much as possible and exclude them if desired, and facilitate the absorption and assimilation, if I may so speak, of such principles as are wanted to act. This so-called new tuberculin is, as a matter of fact, nothing very new scientifically, although a great deal was written about its importance which cannot be denied. We produced practically the same thing in the laboratories under my control, for at least two years, for the purpose of immunizing horses. TR is simply the result of a mechanical process which is, itself, an old one in the science and art of medicine and pharmacy. By injecting this mixture of tuberculin and pulverized germ substance into a horse, in doses varying from 1 cubic centimetre daily or periodically, to 30 or more, during from one to three or four months, we get a blood with serum that has resisting powers more or less pronounced against the development of tuberculosis.*

Now, as to the treatment of the disease. Bearing in mind the essential factors that contribute to the pathology of tuberculosis and the various circumstances that may influence it, how should we treat the disease to-day? Is sero-therapy promising enough to warrant its use and warrant further experiments and investigations? Yes. If it arrests one case in a certain stage does it, therefore, promise to arrest another in a similar stage, irrespective of other influences favoring destruction? No. There is no one treatment applicable to all forms of tuberculosis, irrespective of the conditions complicating or influencing the malady or irrespective of the actual pathologic conditions locally. Anti-tubercle serum can be justly expected to act only against the purely tuberculous processes, and this by no other means than the usual physiologic interference which Nature herself sets forth to neutralize the toxic products of infections and subdue the microbic invasions. Sero-therapy in the therapeutics of consumption has its reason of existence because it is based on natural law. Yet it should be sustained by such forms of special and general treatments as the conditions present may demand. This assistance is useful to facilitate and hasten the repair of the damage done to the organization. True, we have on record apparently complete recoveries from serious conditions, which have occurred after the exclusive use of anti-tubercle serum or serums for mixed infection, but we have a greater number of such recoveries and more numerous improvements as the result of scientific management of the patients and a properly combined treatment. A patient may recover from the effect of serum alone, when the result of the disease is not such as to affect organs or symptoms of paramount importance, such as the lungs, the throat, the circulation, the nerves, the stomach, etc., so severely as to preclude the possibility of their restoration by Nature's own force after the baneful effects of germs and their toxins have been removed by the antitoxin. If such organs or apparatus

* A special paper is in course of preparation to explain in detail the purely technical points of preparing anti-tubercle serum.

are diseased beyond repair, particularly when mixed infection exists to a serious degree, anti-tubercle serum, if it does arrest the progress of the tubercle bacilli, cannot directly repair the physical and physiological loss of the tissues and their vitality, and death may ensue. Here is where accessory treatments are needed. If there be a mixed infection and serum is tried, a serum prepared specially for this condition is essential, such as the anti-streptococcus serum, which is produced on the same general principle as that for tuberculosis or diphtheria, and which is applicable in most of the usual mixed infections of any disease.

The aim of sero-therapy in tuberculosis then is, first of all, to counteract the effect of the toxin; second, to interfere with the progress of germ life; third, to restore to or create anew in the organization, physiologic recuperative powers, thus assisting in restoring the equilibrium of the faculties and the vitality of the organization as a whole. It is plain, therefore, that the serum treatment, like all others, promises most in the earliest possible stages.

From all that precedes in this paper it would seem evident that in the treatment of consumption one should, first of all, pursue a wise course of management, and second general and special treatments suitable to each case. Indeed, it may be stated as an axiom, that all the hygienic influences that may be brought to bear on the system to improve its vital powers should be directed to play their part.

GENERAL TREATMENT.

Climate is a point which most practitioners justly insist on being properly considered. Dry climate, free from the sand and dust storms, so common where they exist, should be chosen, if practicable. It may be hot or cold; both are beneficial in different classes of patients. It should be remembered that some tuberculous patients suffer much from heat or cold, according to their condition, and others the reverse. As a rule, emaciated, anemic patients prefer the warm temperature and stand the effects of cold very poorly, whilst those with more flesh and warmer blood thrive more or less under its influence. Altitude is not of so much consequence. Palm Lake, in California, which is below the sea level and yet exceedingly dry, is said to be the most beneficial locality for consumptives, whilst equally good results are claimed for the altitudes of from 2,000 to 10,000 feet, as exist in Colorado, New Mexico, Texas, and some States of Mexico. The beneficial effects of climate are said to depend chiefly on the germicidal and stimulating properties of ozone and the purity of the air; therefore, it may be obtained, in a measure, in a room in a damp climate in which such air may be to a degree created, by means of electricity and otherwise.

As a rule, patients are removed to suitable climates when it is too late, when they have cavities and are almost unavoidably doomed. On the other hand, those who do go to such climates usually return home too soon. Indeed, those who migrate to dryer climes for lung

diseases should remain there if it agrees with them. They should make it their home. To return from such places to dampness usually means relapse and death.

Hydrotherapy is sometimes useful in consumption, particularly in the earlier stages, and more especially in those who have contracted the disease by contagion, without there being any inherited field for it. Then, salt rubs all over the body, followed by a cool or cold douche or plunge of from one to five minutes' duration and then by a coarse towel friction, assist materially in stimulating the circulation and contribute to the well-being of the sufferer. These should be administered morning or evening.

Massage properly applied is another treatment of much utility, particularly in cases where there is indolence and a disposition to avoid exercise, even though the strength is sufficient to warrant exercise.

Dietetics are also of very great importance. Generally speaking the diet of consumptives should consist largely of animal albuminoids and heat producers of the most appetizing and nutritious character, the most easily digested and in the smallest bulk. While vegetable albumin is good, animal foods seem to be the most suitable, and among these tender beef, broiled, roasted or boiled, stands, in the order named, pre-eminent. Lamb, chicken and game come next. Fresh fish is also good. Vegetables that are agreeable to the patient and do not disturb digestion should be allowed as part of the diet, but not in sufficient quantity to appease hunger or supplant meats. So it is with sugars and fruits, the latter being preferable. so far as sweetmeats are concerned. Milk and cream and butter are advisable, if well tolerated. In case of poor appetite, the whites of two to half a dozen eggs, one to three or four times a day, at meals or between meals, constitute an excellent diet, supplying as it does, a large amount of albumin in a small bulk, usually digestible even by an impaired stomach. These may be given raw or in milk shakes, or in the form of punches with a small amount of good sherry wine. Made dishes, fried articles of food, should be avoided. The excessive use of alcoholic stimulants is likewise contra-indicated, and so is tobacco.

SPECIAL TREATMENT.

First in line is the specific treatment; that is to say, that form of therapeutics which aims to set interference in the way of microbic development. It may consist of prophylactic measures of the vaccinating order, or treatment by the action of immunizing and curative principles, based on the laws underlying immunity and recovery from infections. As vaccinating agents the various forms of tuberculin have been used. Being principles of the germ of the disease, with powers to produce reaction, their effect is limited to the production of a certain kind of tolerance of the consumption germ by the system of the being inoculated. Consequently, it is only in the very earliest

moment of suspicion of tuberculosis that one may expect salvation by the use of such a preparation. Anti-tubercle serum, on the contrary, being the product with which Nature herself often cures tuberculosis without the guidance of the human hand, may be used in all stages with perfect propriety and safety and with the assurance of at least having done our duty in the application of medicine. As said before, it is in the earliest stages, of course, that the disease can be more readily arrested, but being an antitoxin it is applicable in all stages and under all circumstances, except the very rare exceptions in which heart disease or other idiosyncrasies exist, which preclude the hypodermic injection of albumenoids or salty preparations, and anything else sometimes.

In cases of pure tuberculosis, anti-tubercle serum may be administered hypodermically, in doses ranging from five to sixty minims daily, thirty minims being the average maximum dose. The place of injection, particularly when they are to be continued for some time, should be a locality where a heavy fold of the skin can be most easily lifted and the hypodermic needle plunged most deeply into the connective tissue. In my experience I find most suitable the area shown in Fig. I.

The untoward effects of serum injections are very uncommon, particularly if one is careful not to push injections too rapidly and in too large doses from the beginning. Occasionally a local swelling and soreness occurs, which may be reduced by the ordinary methods for such conditions. If precaution has been taken to disinfect the skin thoroughly at the point of injection, by washing the locality and then rubbing it with alcohol, or preferably formaldehyde, there is little chance of producing a swelling due to microbes. I need not say, of course, that the syringe and needle must be thoroughly clean and free from germs of any kind. The kind of syringe that appears in Fig. II is most suitable. It is easily disinfected and is graduated with both systems. Its needles are not so large as those of most instruments and, therefore, cause less pain. The serum itself is absolutely sterile. No one need fear injury from that source, unless by serious carelessness air germs are allowed to contaminate the serum.

Once in a while symptoms of arthritis develop, which resemble very much the ordinary symptoms of rheumatism and which subside after suspending injections for a few days and under the treatment of rheumatism. The occurrence of urticaria and other skin eruptions is not very uncommon, but usually avoidable by progressive doses, as mentioned above.

The most striking, peculiar and perhaps most alarming of all the untoward symptoms of sero-therapy, in any disease, is the strange and sudden interference of the circulation, manifested by dizziness, almost immediate cyanosis, and sometimes more or less serious pain along the spinal cord, from the point of injection downward, including the nerve courses of the lower limbs, occasionally producing pain in the stomach and nausea. Once in a while these manifestations are

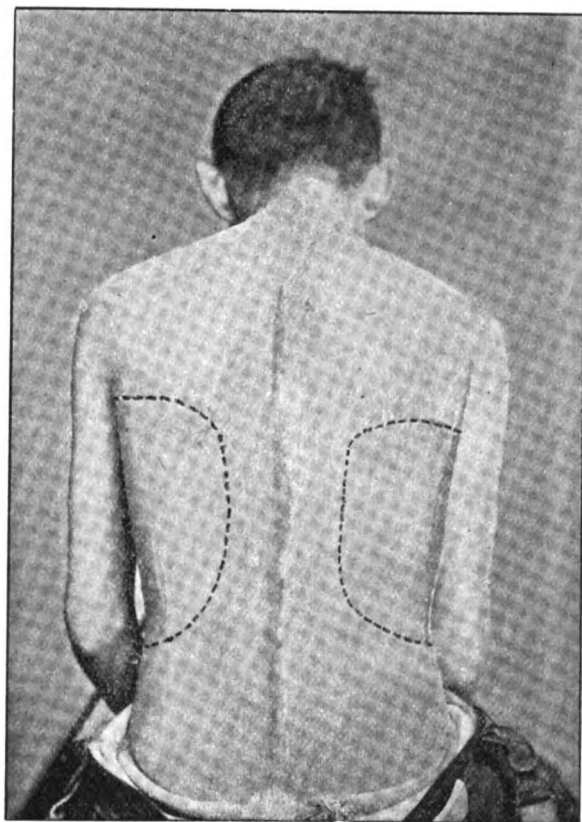


Fig. I.

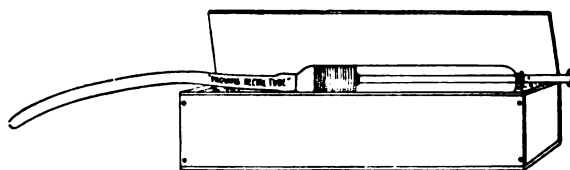


Fig. II.

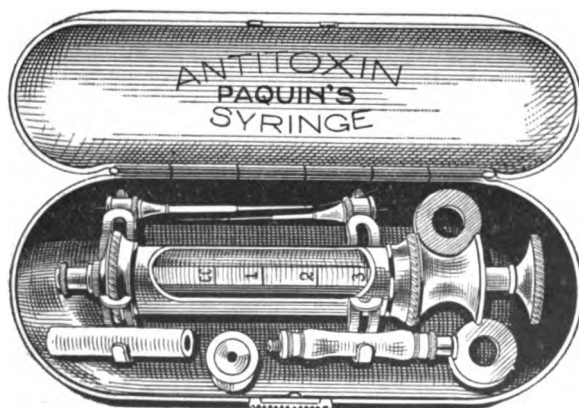


Fig. III.

followed by rigor. Fortunately, these results seldom last longer than a minute or two, are exceedingly rare and never have proved fatal. Over 100,000 injections of serum are recorded without a serious result. In such cases I usually discontinue hypodermic medication and use rectal injections instead, with special syringe seen in Fig. III, which gives, in many cases, as good results, although it requires usually a larger dose. As treatment of these effects I prescribe nitrate of strychnia, hypodermically.

In mixed infections, particularly where the germs of pus predominate and where the expectoration is largely made of pus and broken down tissue, I use the anti-streptococcus serum as accessory treatment. As I said before, I produce this serum under the same principle that underlies the production of all other antitoxins, namely, by the immunization of the horse, by saturating injections of the toxins and germ substance of the streptococcus. This is done by the method known as Marmorek's, somewhat improved. This serum and the anti-tubercle serum may be mixed or given alternately on alternate days.

As to internal medication, it must depend on the existing conditions. In anemia and other conditions suggesting feebleness of the nervous system and circulation, proper reconstructive blood tonics and nerve stimulants, such as pepto-mangan and nitrate of strychnia, are desirable. As to cough, unless it is very aggravating and prevents sleep to a serious degree, I never use opiates. I usually administer, when absolutely needed, codeine and terpin-hydrate.

It has been suggested that alteratives be used to assist in arresting the breaking down of tissue, glandular suppuration, etc., as is done in the treatment of syphilis. For that purpose I have found a water solution of iodine, properly mixed with glycerine and some of the halogen salts, very beneficial. Iodine is credited, indeed, with having cured tuberculosis. The iodides are not good. They destroy red blood corpuscles.

As to inhalations, they should never be of an irritant character and, in fact, one should be very careful in their administration. In the early stages of tuberculosis most inhalations produce an irritation of the bronchi which is followed by a secretion that offers a good nidus for the development of germs. The inhaling ingredients containing the essence of pine needles, benzoin and such essences as are not irritant and are of a balsamic character, are most suitable. In cases with cavities, inhalations containing formaldehyde are useful as disinfectants.

Electricity is also prescribed in tuberculosis. Both the galvanic and faradic currents have been used. The galvanic current is said to act by direct chemical action through the diseased organs, the poles being so placed as to pass the current through the affected parts. The benefits of this treatment are problematical, though sometimes they seem to be favorable. The faradic current is applied in a general way, as a stimulant of the general system.

Of recent date, so-called medicated electricity has been used in tuberculosis. It consists of treating the diseased portions by the application of the galvanic current with poles dipped in certain drugs. Iodine has been used chiefly for this purpose, and it is said that the current carries with it through the diseased organs principles which tend to arrest the progress of tuberculosis.

Upon closing, I wish to draw your attention to an exceedingly important question. It is, that most every physician expects too much of sero-therapy in tuberculosis. I have never made extravagant claims for it. It can not perform miracles and should be used early. It is neither just to the patient or to the treatment to apply it as a last resort, when everything else has failed and the condition of the patient is such that doom stares him in the face.

QUININE IN MALARIA, EXCLUDING THE SIMPLE INTERMITTENTS.*

"Wo viel Licht ist, ist stärker Schatten." Goethe.—(Where there is most light, the shadow is strongest.)

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There is a vast difference between the action of Quinine in the intermittent malarial fevers and its action in the continued malarial fevers, "the Malaria subcontinua typhoidea" of the Roman school, the malarial cachexia and the debatable "terra incognita" of Malarial toxæmia's seen in hot paludial countries.

This paper should properly have been preceded by papers and discussions on the etiology, pathology and clinical varieties of the malarial toxæmias as seen by us in this climate. This would have enabled me to classify the action of Quinine according to the pathology and clinical picture of each case. Such a discussion as this is an eminently fitting and proper one in our locality, and it is high time that a protest be issued against the general acceptance of the views of Osler, Thayer and other Northern clinicians on the specificity of Quinine.

Before entering into an argument upon the specific action of Quinine, I wish to state that while Thayer in his recent work on malaria distinguishes three types of the malarial parasites: the tertian, the quartan and the parasite of æstivo autumnal fever, I believe that it is safe to assert that there is more than one variety of parasite in æstivo autumnal malaria, and that these parasites have an entirely different action as regards the manufacture of Toxines.

Under Quinine the forms of the ordinary cycle of development disappear rapidly from the peripheral circulation but the crescentic and ovoid bodies remain a much longer time, sometimes even for months.

*Read before the Clinical Society of St. James Dispensary.

In this paper I shall abstain entirely from a discussion of the treatment of malaria, either preventive or curative, but shall confine myself as closely as possible to the action of Quinine, and we shall see whether Quinine is a true specific or preventive of the various forms of malaria with which I have been acquainted, both here and in Rome (Italy).

Osler, Thayer, Councilman and others in the North, speak truthfully when they say that Quinine is a true specific against the malarial parasite and the malarias which have come under their observation, but as these gentlemen have not studied malaria in its true home, in a climate fitted for the development of the most virulent parasites, with infections occurring the year around, they are not fitted, by either experience or observation, to settle the question as regards the action of Quinine in the malaria that we see here. This applies to the entire region South of Charleston, and the Gulf Coast.

In the first place let us see whether Quinine is the best preventive of infection. It is so stated by Northern writers, English, French and German authorities, but is this the case with those who live in the regions infested by the severer varieties of malaria? No, they find by experience that Quinine *cannot be taken indefinitely the year around* in doses sufficient to kill the parasite as fast as it develops, and various peoples have adopted different measures to prevent infection, which prove *better for long continued use*.

In some parts of Italy they find that a strong decoction of fresh lemons will prevent infection, while in other regions of Italy the continual use of small doses of arsenious acid act well, while in India, Assam and Cochin-China, the natives working in the rice fields and subject constantly to severe infection, find that opium will prevent malaria where Quinine fails. This to me is very suggestive, being far better evidence upon which to base conclusions than the mere hypotheses of Northern observers; or the passing observations of travelers, who, of course, can take Quinine for a few weeks or months.

Now, coming to the treatment of malaria (and, of course, I am always speaking of the severe infections and leaving out of the question the Intermittent fevers), is Quinine a true specific? No, there are cases innumerable in which the patient would die did we not add other potent drugs to our Quinine, or for a time at least attach more reliance on other drugs than Quinine, that we are inevitably lead to the conclusion that although a true specific against the plasmodium of Tertian and Quartan fever, it is not a specific or antidote to the parasite of the more severe continued malarias and the Toxines generated by them. With patients in whom the microscope has shown the disease to be malaria in any of its forms, Quinine is a specific in all those with intermissions or with marked remissions; not so, however, where the fever is continued, or in those malarias with but little temperature.

In the continued fevers toward the last stages, marked remissions

are apt to occur (in the milder cases), here again Quinine becomes a specific. There are, however, exceptions even to this rule, for it is no uncommon thing to see a patient with Intermittent fever to whom Quinine has been properly administered, have a distinct malarial paroxism with the ears ringing from Quinine.

Dr. Plehn, a German physician practicing in the Cameroons on the west coast of Africa, and in what is probably the most malarious region on this earth, has observed that Quinine is a good preventive, and the best for treatment in newcomers and those not long resident in that region, but in spite of 5 grains per diem, practically *all* foreigners get the fever, and the large majority die of it sooner or later. In all these cases, with the exception which I shall hereafter note (the hæmaturias) Quinine is given in enormous doses, with Calomel (which, by the way, is never omitted) and stimulants, but while the actual paroxism is overcome by the Quinine (if the case be seen in time, or not too malignant), the spleen remains large, *the crescents remain in the blood*, and malarial anæmia sets in.

What does this interesting observation show?

1st. That Quinine is a specific against the protozoön of tertian or quartan malaria.

2d. That it inhibits, for a time, the development of the protozoön of pernicious malaria, but does not kill it; nor in time, even with Quinine constantly taken, prevent its development, *every time the patient catches cold*, or is exposed to a particularly severe contagion.

3d. That Quinine alone has no action on the toxine produced by grave malarias over which Calomel has twice the potency (at least in full physiological doses).

4th. That Quinine even as a prophylactic cannot be indefinitely taken.

5th. That Quinine has no effect whatsoever on malarial anæmia (really a chronic toxæmia).

Another very interesting form of protozoal "malaria," Beri-Beri, is not cured by Quinine, although slightly benefitted for a time, *if the febrile manifestations are sharp*. In this malignant form of disease, the pigment bodies seen in our own malarias are deposited in the brain and other nerve tissues, and these pigmented bodies either before or after degeneration produce a toxine absolutely unaffected by Quinine. In the recent epidemic at the Insane Hospital, Tuscaloosa, Ala., reported by Dr. Bondurant in the New York Medical Journal, it is stated that Quinine failed in every case to do any good. It is to be regretted that special work on the etiology was not done, and establish the fact of direct relationship of the sporozoöns supposed to cause Beri-Beri.

Still another variety (more correctly complication) of malaria, Hæmoglobinuria, is made worse by Quinine. I believe that the great majority of those practicing in countries where severe malarias exist will confirm the observation that Quinine makes it worse. Thayer admits that Quinine never shortens an attack of Hæmoglobi-

nuria, but says it prevents a recurrence—this latter being an assertion without any warrant of experience, and I know it to be wrong. Quinine is a *frequent* cause of Hæmoglobinuria, and after one attack, if Quinine be taken, *is very apt to cause the condition which Thayer says it will prevent.*

In my experience the cases of malaria (as proven by the microscope), in which Quinine failed to cure—hence did not act as a specific—have been confined to two types. 1st., and most common, severe malaria subcontinua typhoidea (an æstivo-autumnal form) where the fever ran along for days with very slight remissions; and 2d. those irregular forms, sometimes seen, where, with undoubted malaria, the fever of a continued type is low, seldom above 102, the symptoms presented are those of a profound toxæmia resembling uræmia; suppression of urine, jaundice, delirium, subsultus, without chills or paroxysms of any kind.

I will observe here that there are cases of both types, above mentioned, that would surely die, did we not add other drugs to our Quinine, and that a large proportion of cases for a time at least are better off without it. We must recognize that in these types we have a toxæmia to deal with, and it is just this toxæmia which I claim is unaffected by Quinine.

In treating these very severe malarial toxæmias as we see them in the country or plantations just out of town, or if nearer, only in the suburbs, or on river sailors, we are placed at a great disadvantage as regards doing the best possible for our patients. Perhaps in these very cases if our patients could be moved away from an atmosphere whence constant reinfection is taking place, and taken to a grand Hospital like the Johns Hopkins in Baltimore, where the poor, even, can obtain luxuries, and under skilled trained nursing, perhaps in *such* cases Quinine might help our patient *if* proper eliminative treatment were added (for it would not without it); but how is it with us, the patient in a miserable hut, or poor farm house, not a bath tub in miles, no clean bed linen, no decent drinking water, no chance of proper food or good nursing, and an unalterable opposition to Hospitals in general. It is in these cases, gentlemen, that we have to practice, for it is only amongst such that we see most of our severe malarias, and if Quinine were a specific they would all be cured before we ever saw them. They all take plenty of Quinine dissolved in water, and with it Calomel.

I have tried, in the severer cases, Quinine intra-venously, and must say that it does act well, that it is the only way to give it in the severest forms, but it does not shorten the course of the fever; it seldom breaks it up, as it should, if it were a specific.

Were it not beyond the scope of this paper I should have enjoyed relating my experiences this summer and fall in the treatment of some severe cases; in fact, I am preparing a paper on the results obtained by using the formula used by Woodbridge and others in the treatment of Typhoid Fever. I was very much struck by the uniformly

happy results obtained, and in many instances never used Quinine from beginning to end of the fever; commencing it in convalescence on two grain doses three times a day. I should like to see the subject of treatment taken up by this Clinical Society, as I should the prevention of malaria. If practitioners of experience around here are not competent to speak on the treatment of malaria, who could be?

I am one of those who believe that Quinine is seldom properly administered. It is not the amount, but the way you give it that counts. Give it with an acid if the stomach will stand it, or else, if you still desire to give it by the mouth, give it in the efferecing form recommended by Burney Yeo. I quote from him as follows: "We may state in this connection, that we have found the efficacy of Quinine in febrile states very much influenced by its mode of administration. If we prescribe the Quinine dissolved in citric acid, and given in effervescence by adding it to an alkaline mixture, doses of two or three grains exert a powerful antipyretic influence far greater than that obtained by the same quantity of Quinine given in the dry state. We have seen abundant reason to believe that in infective fevers, if Quinine be given in saline solutions, it is the most active and reliable anti-toxine we at present possess."*

The use of a strong decoction of lemon in the early morning is a very useful remedy, but I cannot branch out to speak of its action, because that would be exceeding the limits of my subject.

There is one way of giving Quinine by the mouth, of particular efficacy in many of the severe varieties, and that is Warburg's Tincture, and, to my mind, it is a most excellent medicine.

One very strange observation that I have made is worth relating. I had a patient with occasional severe attacks of malaria, who, for some reason or other, never seemed to get the physiological effects of Quinine; in other words, he never had ringing in the ears. Thinking that the Quinine was not being absorbed properly, although I had given it in various ways, I gave him several hypodermics, by the method I shall further on describe, and failing in this, I put him on big doses of the Warburg's Tincture, and strange to say, *one ounce of Warburg's Tincture made his ears ring*. This extraordinary phenomenon has often been a source of perplexity to me, and in reasoning about it, have come to the conclusion that something in this compound may act in a slight measure as an antitoxine, or in some way so modify the chemistry of the blood, as well as the activity of the glandular and eliminative system, *as to give Quinine a chance*. Is it not true perhaps, that Quinine meets with resistance in the blood which is in some way modified by that complicated mixture—Warburg's Tincture? Gentlemen, this is a very interesting subject upon which much remains to be known.

Warburg's Tincture should always be given, as recommended by the experienced practitioners in India, after a brisk purge, undiluted, in doses of half ounce, all drinks withheld, repeated in three hours,

*Burney Yeo, Clinical Therapeutics, Vol. 11, page 637.

and the patient carefully rolled up in blankets to encourage the profuse aromatic perspiration which follows. It is one of the most powerful diaphoretics known, it is also a diuretic, a stimulant and a purgative. I always follow its use by opium, and small doses of whiskey, at least never omit the opium, which I believe acts most happily. Recently, I have used the powdered Warburg's Tincture put up in elastic capsules, by Messrs. Park, Davis & Co., an elegant preparation, far more agreeable to the patient than the liquid, but I am far from convinced that it compares to the liquid preparations obtainable in England, for our American preparations of the liquid do not act as well as the English.

Quinine, by the Rectum, I do not favor, and shall not speak of to-night, nor shall I say anything about Inunctions, for that is a very uncertain way of giving it, but of the Hypodermic method I am a great advocate. In giving Quinine subcutaneously, let me urge you to use it in free solution, and not stick to your small hypodermic syringes. I am now using what is usually called an "antitoxin" syringe with a 16 c. c. capacity. By making a very dilute solution more Quinine is promptly absorbed, and there is absolutely no danger of abscess or painful inflammations. You should not use an acid to dissolve the Quinine, as is advised by most writers, for it is not necessary, and is very painful. The Dihydrochlorate and Hydrobromate of Quinine are the two salts best adapted for such use, and also for intra-venous injection. The water should be hot, about 100 degrees F., and the needle sharp. Whenever in any case of malaria the gastric symptoms are marked, and this is frequent, use the hypodermic method in the commencement. You are then *sure* that the patient is getting all the Quinine you want him to have promptly, and without additional burdens on the stomach. I have never seen but two abscess (and they were not in my practice) from hypodermic injections of Quinine; one due to an excess of acid, the other to a filthy syringe. Don't inject in the arms. The belly wall is a very handy place to inject your solutions, and never bothers the patient, like it does in the thighs or back. Use from 8 to 10 grains at each injection, and if the Quinine does not work promptly don't pin too much faith in it, nor that absurdity called the Therapeutic test—a relic of barbarity.

Intra-venous injections of Quinine you are all more or less familiar with, at least as regards technique, which is simple, but I find a good deal of hesitation amongst a great many physicians as to its use. Fear of its difficulty, of slipping up in asepsis or admitting air in the veins; all points easily avoided and overcome. Having been brought up, you might say, on this method of using Quinine, and having seen its development in the Santo Spirito Hospital, Rome, in the service of Baccelli, I have had very good opportunities of seeing it practiced. Here, as elsewhere in this paper, I shall have to remind you that as this is not a paper on the treatment of malaria, I must refrain from describing the method, its indications, advantages, but simply its action.

We get by an ordinary injection what for the blood is a very large amount (15 grains), and I honestly believe that if we could see our cases early enough, all cases of pernicious malaria of a fulminating type could be saved; but, alas! we seldom see them early, for such cases come in town from the country "in extremis"—this at least is the common experience in Rome. Once the plasmodia have had time to fully manufacture their toxine, it is too late to rely on Quinine. As, however, I have seen several cases recover after intra-venous injections in the last stages, you may well ask how it is that they did not die too. Gentlemen, I attribute a good share of *some* (not all) the recoveries to the happy effects of Quinine, but some are due to the salt solution injected at the same time. It has never yet been done by control experiments, but I have no doubt that if you gave some of these cases a large intra-venous injection of normal salt solution, say 20 ounces, and *no* Quinine, you would get *as good results as you could by Quinine*. I know, from experience, that this will start secretion in the kidneys, the only channel by which the poison escapes in this condition. Any observing man whose misfortune it has been to have a number of severe pernicious malaria cases in his practice, will agree with me when I state that *if you can* set up diuresis, sweating and purging, while vigorously stimulating the patient, he is apt to live, Quinine or no Quinine; and on the other hand, without this, but all the Quinine you please, the patient will die. It is the common experience we have with every poison from malaria to rattlesnake bite.

Let us not say a thing is so because the books written by great teachers say it is so. Let us observe, reason and then if we are not satisfied of the accuracy of a statement let us say so. The last words have not yet been spoken on the specific action of Quinine in malaria (in our climate), and in the same breath I will say *the book on malaria has not yet been written*. I know quite well that there will be wailing and gnashing of teeth over the presumptuousness which could question the specificity of Quinine, but the truth will out, and I feel confident that many will agree with my views on this subject.

To summarize briefly my conclusions are:

1. As a preventive Quinine will not do for those who are compelled to live indefinitely in a severe malarial climate; in time acting as a vaso-motor poison.
2. Quinine acts nearly as a specific in all malarial fevers characterized by intermissions or well marked remissions, but fails in the continued fevers, those with typhoid-like symptoms, those malarias without temperature, and the cachexias and anemias due to malaria.
3. Proving thus that Quinine is a poison to the plasmodium itself, but useless against the toxine manufactured by it.
4. That Warburg's Tincture in the last condition has an action not yet understood, on the toxine (or the eliminative system) by which the system is put in condition to benefit by Quinine.

5. That Quinine should never be used in Hæmoglobinuria, or given subsequently, to one who has suffered from it, being liable to bring about a recurrence of the condition.

6. Only those living in regions of severe malarias can become competent to settle these questions pro or con.

ENCOURAGING THE SURFACE GROWTH OF CARCINOMA AS A PALLIATIVE MEASURE OF TREATMENT.*

By EUGENE R. CORSON, B. S., M. D.

Savannah, Ga.

The real nature of cancer still awaits a discoverer. The only absolute cure known to us to-day is its radical removal by the knife in its very incipency, a stage, which, unfortunately, in a very large majority of the cases, is passed before it comes to the surgeon. Of its life history our knowledge has increased, and of the various surgical methods for its radical removal our knowledge has also increased; witness, especially, cancer of the breast and of the uterus.

I wish in this short paper to call attention to a phase of treatment with which I have had some experience, and which has suggested certain thoughts worth considering in this most intricate and most human problem.

About twenty years ago Marion Sims gave the profession his method of treating uterine cancer by curettage and the application of chloride of zinc. There was much in his method to give encouragement to the palliative treatment, at least, of this disease, and it was quite universally taken up. Though Vandever, of Albany, has quite recently revived his method by citing some good results in his own hands, the method has given way to the more radical and more brilliant operation of total hysterectomy. I happened to be in Vienna shortly after Sims operated by his method in the General Hospital there, but the results were very unsatisfactory, and several of his patients died shortly after the operation, if not immediately, as in more than one case he had entered the bladder, or started up a peritonitis. I can recall seven cases where I did the same operation; they were, however, cases well advanced, and not one of them lived a year. What seemed at the outset to offer some encouragement was the apparently clean and healthy granulating surface which contracted well down in the healing, and which gave some hope of a temporary check of the growth. With my own cases, however, I noticed that though the *surface growth was indeed checked for a time, its deeper growth was unaffected*, and the patient *rapidly succumbed to this deeper invasion*.

*Abstract of Remarks made in presenting a case of Carcinoma before the Clinical Society of St. James Dispensary, January 1st, 1898.

Recently I have had three cases which I have treated by curettage alone, and a curettage not very radical, which have done better, and I have found that by this means, though I have had to curette more frequently, the patients have lived longer. The curette cut off simply the exuberant growth, and encouraged rather this surface growth, upon which the cancer activity expended itself, leaving the deeper growth quiescent.

In one case, especially, this has been so evident that I shall describe it somewhat in detail.

In 1892, a woman of 52 came to me with a cancer of the cervix, well marked though apparently limited to the cervix. I simply curetted her for the first three years every six months, and since then every three months. April, 1898, will make six years that she has been under observation, all of which time she has attended to her household duties, and with little pain or discomfort, barring the inconvenience of the daily morning and evening douches. She lives in the country, but regularly every three months she comes to the city for her curettage. With each scraping a little more has come away until, for the last year, there remains but a fibrous bag or shell in place of the uterus, about four inches deep, which about fills up in three months, and is as regularly scraped away. This fibrous bag is very hard and firm, and acts as a culture flask for several forms of bacteria which carry on an active growth with apparently very little influence upon the general health. There is very little pain, and practically no odor if she attends to her douches. It is only when the cavity fills up and the growth breaks down that the characteristic odor appears. There is then a general malaise and a dirty looking skin with an occasional slight rise of temperature. After the curettage there is an immediate improvement in appearance and general feelings and the patient returns to her work with renewed energy. The woman seems as well as she was two years ago. I believe she would do better if she had a slight curettage every two weeks, but I cannot get her to town that often.

Success in this case I ascribe to the continuous treatment from early in the disease. I have shown her to several physicians who have been struck by this remarkable feature in her case.

A second case which seemed quite hopeless of even temporary benefit, so marked was the cachexia, and so far advanced it was, lived about a year with four curettages. A third case, diagnosed as carcinoma by five competent medical men, is as well off to-day as it was two years ago.

I believe it is generally admitted that the old method of amputation of the breast, a partial removal of the growth only, rather hastened the termination of the case than acted as a palliative measure. Thus I came to regard the Sims' method in the same light. It removed too much. It took away the surface material for the cancer to grow upon, and it sought pastures new deeper down to satisfy its voracity. The old method of pastes, largely employed by the

quacks for cancer of the breast, did better really than this partial amputation. It removed little more than the superficial growth and left a free surface for the cancer to start fresh upon. Like a constant lawn mower on a vigorous turf it encouraged a surface growth.

Looking at the statistics of total hysterectomy for cancer of the uterus, the operation does not offer as much encouragement as the early subsequent histories of the cases would indicate; and by statistics I mean honest ones which include the subsequent histories. The vast majority of the cases die within four years. Cancer cells are left, and, robbed of their more eligible prey, they seek pastures new in the deeper tissues. I believe with Pryor that when cancer of the uterus becomes clinically evident hysterectomy does not cure.

Though the new radical operation for cancer of the breast certainly offers more hope for a cure when taken in its incipency; when not done at this stage the results are not much better, if any. Halsted's paper was valuable to me solely as showing the new operation; his statistics are to me quite without value. I have done the radical operation but three times. One without any return in six years; one without any return on the operated side in five years, but its appearance on the opposite side within that time. A small lump was noticeable at the first operation but the patient refused to have it removed. Having grown to a good size in five years it was removed along with the pectoralis major and minor, and all the axillary glands and adventitious tissue; but symptoms of bad digestion and impaired nutrition led to a suspicion of secondary growths in the liver, verified by death eight months later, without any recurrence of the growth in the old site. The importance of non-recurrence of the growth in the site of operation, dwelt upon with much stress by Halsted, seems to me unwarranted. Better appear there than deeper down.

The thoughts which have come to me from my own cases may be put in the shape of certain questions which I give for what they are worth; they may be quite worthless.

1. Is there a time limit to the cancer activity?
2. Is it possible for the body itself to outlive this limit?
3. Provided there be such a limit, can we by any methods so encourage the surface growth as to shorten this limit? In other words, encourage its own death by a supernatural activity in a direction where it cannot kill?
4. Would not the theory of cancer being but an abnormal growth of embryonic tissue rather favor this idea?
5. Does not the well attested fact of the occasional spontaneous disappearance of sarcoma rather favor this idea?

And, finally, I am led to ask, Is there any case on record of carcinoma, where the diagnosis has been verified by the microscope, which has spontaneously, or by local irritation, disappeared?

OPIUM IN INDIA.

By ROBERT D. RUDOLF, M. D.,
Edin, Toronto.

I have no intention in this communication of discussing the pharmacology and therapeutics of opium, nor yet of mentioning the diseases in which it is indicated or otherwise, but would ask you to bear with me for a short time, while I give you the knowledge of the drug which I picked up while living in India. During the five years that I was there I resided in Behar, where the best Indian opium is grown, and where many thousands of natives and a few Europeans are employed in the cultivation of the white poppy (*Papaver somniferum*) from which opium is obtained.

Just at this season of the year, when, after the cold weather, the climate is becoming tropical again, the little fields round thousands of native villages will be white with poppy blossoms, and the heavy, sweetish odor from these is as characteristic of the season as the smell of a hay-field is of June. The fields are prepared in December with the greatest care by the native and his family, and when the ground is so fine that not a lump the size of a walnut remains, they mark the surface off into oblong beds about six feet by four feet, and the ridges between these beds are trenched to allow of the free passage of water, for all opium is grown by irrigation. This irrigation is usually from surface wells.

The seed is sown broadcast early in January, and in three or four days comes up. When the plants are about two inches high, most of them are weeded out by hand, and only one plant to every square foot or so is left. The irrigation is continued every two or three days, until the blossoms fade and the heads appear. When fully grown, the plant is about four feet high. The blossoms all come out nearly at the same time, so that a whole field, which was pale green one day, is white the next. The petals of the blossoms are collected by gently removing them by hand from the capsules, never plucking them off forcibly, as this would injure the latter. These petals are then handed over to the women of the family, who, seated in front of circular iron plates placed over a slow fire, dab the petals one by one, pressing them with a damp roll of cloth. When fresh, the petals are gummy, the heat makes them stick together, and the moisture being driven out they form circular cakes, technically called "leaves," eight inches to fourteen inches in diameter and .5 to .3 inches thick, which are used in making the shells of the opium cakes at Patna.

Next the poppy juice must be collected, and this is a very critical operation, and all the native household is pressed into the service. Each person is armed with an instrument having two or three sharp points, so that one stroke of it makes two or three parallel scratches. Thus armed, they go into the fields in the afternoons, when the sap is rising best, and lightly scratch each poppy capsule on two or three sides in a vertical direction. This is a very tedious job when a man

has several acres of poppy under cultivation, and all the village, from old men and women who can scarcely stand to children who have barely learned to do so, are pressed into the work. The work is urgent, for a whole field becomes ready for the extraction about the same time, and it must be all accomplished in a very few days, or the capsules will dry up and much of the juice will be lost. When the capsule is lanced, a white juice about the consistency of glycerine slowly exudes, and this partially dries and turns brown. Next morning the harvesters return and scrape off the crude opium; this they smear on the palms of their hands, and when they have got together a good collection, they put it into earthenware dishes. This collecting is done with blunt knives like bits of hoop-iron. Each set of incisions in a capsule yields about $1\frac{1}{2}$ grains of crude opium, and the scarifications are repeated several times—until the juice ceases to flow. As thus collected, opium is a granular, rose-red liquid, containing 49-51 per cent. of moisture. The poppy plant now rapidly fades and is soon cut down and broken up, and is sent in to be used for packing opium cakes. The seeds are pressed for poppy oil, or are kept for the next year's sowing. After pressing, the residue is used as food for cattle. The land is at once cultivated again and, probably, indigo is sown—what strikes one especially in Indian agriculture being that the soil is given no rest, one crop following another in constant succession.

The opium trade of India is a government monopoly, and is worked by a department of Europeans, assisted by a great number of minor native officials. These grant licenses to the cultivators, without which they are not allowed to grow the poppy. They also advance money to enable the cultivators to meet the expenses of preparing the land, etc. They measure all the land after it has been sown with poppy, and thus check any cheating, in that a native cannot get an advance on a greater piece of land than he actually cultivates. All the opium that is collected must be taken by the natives to the government go-downs (or warehouses), where it is weighed and carefully examined to see that it has not been adulterated. In spite of this barrier, adulteration is a common thing, and the substances used for this purpose are very numerous, of which gum acacia, bael, betel, the juice of several milk-yielding trees, raw sugar, ghee (boiled butter), flour, linseed, brick-dust, and even cow-dung may be mentioned.

The examiners at the warehouses, become very skillful in detecting adulteration by the senses of sight, touch and smell, and use no chemical tests there.

All the opium is, at the warehouse, roughly divided into three qualities, according to its consistence—the most solid being the best—and the value is placed to the credit of the grower, and he is paid that amount in cash, less the advance, which he received earlier in the season. The officials then put the opium into great earthenware jars, each containing eighty pounds, and these are carefully sealed,

and then sent by boat or train to headquarters at Patna, under a guard of police.

Arriving here, the opium, after being carefully check-weighed, is searched and again classified, first by hand—and the men to do this work can, from long experience, tell to one degree the consistence of any specimen—and then is classified on a steam table.

Dr. Manyard, the officiating factory superintendent, thus describes this second examination:

“These tables are shallow iron chambers, inside of which steam circulates, and on top of which rest white china plates. A specimen of a hundred grains of opium dried to a powder on these shows by its loss in weight the amount of moisture it contained. Thus, if 100 grains result in 80 grains, we say the consistence of that opium is 80°, *i. e.*, it contains 20 per cent. of moisture, and it is on this consistence that the assami is paid, the same weight of opium at 80°, of course, being more valuable than at 50°. Every specimen, in addition to the assay, is also carefully tested for impurities, and not until a certificate of purity is received back from the laboratory can any single jar of opium be passed into the *malkhana* storing vats, where opium of different classes (each class including 3° of consistence) is stored in different vats. Each class bears a distinctive name, thus, *awal* includes opium of consistence, 70°, 71° and 72°, *darawal*, 73°, 74° and 75°, and so on. This classification and examination of the opium takes place in April, May and June—as many as 1,200 and even 1,800 jars (maunds) being disposed of daily. Good opium, as this received at the factory, is a moist, granular, rich mahogany-brown colored substance, varying in consistence according to the inspissation it has undergone, from that of thick pea-soup to that of putty; the consistence also rising with the amount of *pasewha* present. The color varies with the age of the opium (darkening with age), amount of *pasewha* (darker the more there is), soil on which grown (lighter from high land only recently cultivated), but is never black unless adulteration has occurred. The texture varies from the distinctly granular to the homogeneous, but when the opium is pure is always uniform. Its variations depend upon the amount of *pasewha* present, but more especially upon the manipulation the opium has undergone, the grain being destroyed by long manipulation. The texture is usually determined by taking a specimen in the palm of one hand and spreading it out with the other, or with a spatula. Pressed between the finger and the thumb, opium is sticky and viscid and draws out in fine threads, which break with a ragged fracture, and by the appearance of these the Chinese, in part, judge of the nature of the drug. The smell of fresh opium is strong and peculiar, rather agreeable, fruity, it has been called, and with less justice narcotic, as it rather stimulates than narcotizes, at any rate when first smelt. Its taste is also peculiar and bitter. Pressed between two glass slides, it is translucent and of a reddish-brown color. The same result may be obtained by smearing a piece on a white china

plate with the finger, when any blackness or grittiness indicating adulteration is at once revealed.

"Starch is also said to be detectable by the naked eye in these ways, and, no doubt, can, when present in a very large amount, but it is unreliable.

"Microscopically, opium macerated in glycerine shows as a brown amorphous or granular substance, in which are to be seen large crystals—either single tablets with pointed ends resembling ammoniaco-magnesian phosphates (as figured in Sir Roberts' book on Urinary Diseases) or in tufts resembling stars of uric acid. There are also flat, square tabloids. A few starch grains, resembling arrowroot or tapioca, may generally be found, also refractive globular bodies said to be resinous, and now and again particles of vegetable fibre."

In addition to this opium, there are a number of varieties sent in *e. g.*:

(1) *Khurchan*, which is the scrappings from the earthenware dishes of the natives.

(2) *Pasewha*, that is, an acrid kind of opium, which rises in the capsules during a east wind, and which, although very pure opium, is disliked because it is hygroscopic, and hence unfit for the interior of opium cakes.

(3) *Kuffa*, that is, pieces of cloth which have opium adherent to them. If clean, the opium is washed out and used for alkaloidal manufacture, otherwise it is confiscated and burnt.

(4) *Burned Opium*, usually from accident.

(5) *Contraband Opium*, seized in Bengal or Assam.

(6) And lastly, *Adulterated Opium*.

All opium at Patna is specially prepared to meet the three uses: (1) provision for the China market; (2) excise opium for use in India; (3) medical opium. This last is of two kinds—cakes and powder—and is made from opium of highest consistency and lightest color. It is spread out on shallow wooden trays in the shade, carefully protected from the dust, and kneaded by hand every few days until it rises to 90° consistence. This takes months to effect, and is then pressed in a hand-press into cakes of two pounds weight each, wrapped in Nepaul paper, and issued to medical storekeepers. The powder is simply opium dried to a powder on plates on the steam table, and is pure opium at 100° consistence.

The opium for use in China and India is sent out at the standard strength of 75° (25 per cent. of moisture). It is made into balls weighing two pounds each, and these are packed in boxes among opium plant straw. This opium is dispatched to Calcutta and there sold to Chinese and Indian buyers at the monthly Board of Revenue sales.

Opium, not suitable for any of these three purposes, confiscated opium, and *pasewha* is all sent to Ghazipur, where it is used for the extraction of alkaloids.

TO BE CONTINUED.

Georgia Journal of Medicine and Surgery.

EDITED BY

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PHOTO-ENGRAVINGS to illustrate accepted articles will be made free of charge, if proper drawings or negatives accompany the manuscript. Electrotypes of such cuts furnished at cost.

PHYSICIANS' WANTS, ETC.—A department will be devoted to the free publication of subscribers' wants, practices for sale, change of location, etc.

SECRETARIES OF MEDICAL SOCIETIES will do us a favor by keeping us informed of dates of meetings of same, etc.

MEAT INSPECTION.

We notice that several cities throughout the South, Savannah included, have recently appointed meat inspectors whose duty it is to inspect meat in the markets where it is sold, as regards its freshness, cleanliness, and fitness for human food. We consider this a very superficial and almost useless method, as the men usually appointed have no special fitness for their office, excepting a strong political pull, which in no way enhances their value to the public as meat inspectors. What we think is needed is for each city to establish its own abattoir and require all animals killed to be brought to this place for slaughter, the city can then charge each butcher a certain small amount for the privilege of butchering his animals there. Inspection could then be rendered a reality, for a good veterinary could be on hand during the hours to examine the living animal. The condition of the dressed meat is but a poor and uncertain guide to the condition of the animal from which it is derived.

It is far more important to see the condition of the living animal and the state of its insides when killed, than to look at the meat on the butcher's block. While the average inspector might know whether it came from a horse or a cow, a sheep or a goat, a pig or an opossum, they would not know whether they suffered from tuberculosis, trychinea, or some of the numerous other diseases that affect cattle and hogs. This is where the present system shows its ab-

solite worthlessness. If it is the public health that is in question, and we are to have meat inspectors, and the public are to receive the good capable of accruing from their work, let them be men capable and with the knowledge of diseased conditions, and how to detect them, and provided with proper appliances and instruments for their work. The appointment of meat inspectors may be a very good beginning, but if it stops at this, it is a bad ending. It is only in this way that the public can be protected from eating the meat of diseased animals. The safe course would be to reject all unhealthy animals, and then the unprincipled would be prevented from turning doubtful animals into hard cash. The iron hand of knowledge and science would then give another hard blow to the spread of infectious diseases.

The Clinical Society of St. James Dispensary announces a most interesting program for the year just commenced. Regular monthly meetings will be supplemented by clinical meetings to be held about the middle of each month, at which only brief clinical communications and the presentation of patients, specimens, etc., etc., will be allowed. The regular monthly meetings will be devoted to papers and discussions on the subject of Malaria in all its phases. Of the papers so far promised the 1st, on Quinine, appears in this issue; the 2d will be on the Clinical Types of Malaria as seen in Savannah; the 3d on the Etiology and Pathology of Malaria; the 4th on the Diagnosis and Prognosis of Malaria; while two papers on the treatment, one of acute and the other of chronic forms; also, a paper on Malarial Hæmaturia by a prominent practitioner from another part of the state where Hæmaturia is quite common. A great deal of interest is being manifested in this important subject, and it is believed that a thorough study and discussion on the question of malaria will be of material benefit to many.

It is pleasing to see a medical society devote itself with energy and enthusiasm to the thorough study of questions so vitally interesting to all Southern practitioners, and the JOURNAL is pleased to announce that it will publish in full all the papers and discussions on this subject.

The October issue of this Journal contained an editorial entitled, "The Medical Signers of the Declaration of Independence." This was copied in a recent issue of the Charlotte Medical Journal, and while we were given credit, it was difficult to see whether the whole article or a part of it was borrowed from us. To prove this several journals copied and made extracts from this article giving the credit to the Charlotte Medical Journal. This is a mistake that we think ought to be corrected.

EDITOR'S TABLE,

An enterprising knight of the razor, at the instance of one of the editors of this Journal, has opened a barber shop completely fitted for "aseptic" tonsorial operations of all kinds. An up-to-date formaldehyde gas generator and accessory apparatus, for the thorough sterilization of brushes, combs, razors and other paraphernalia, supplemented by sterilized linen, disinfection of hands, and other details, insures the patrons of this enterprising barber, of asepis as complete as could be expected from any layman. It is a move in the right direction, and a peaceful revolution which can be brought about easily by the physicians who are willing to take the trouble to do it.

In order that a medical journal may flourish and constantly develop to the highest ideals, (1) it must have original contributions and papers on subjects of interest to the profession. This journal, with its eminent collaborators and regular contributors, does this; (2) it must have the willing financial support of its readers. This journal daily receives letters similar to the following received to-day:

"GAINESVILLE, FLA., Jan. 11, 1898.

Editors Georgia Journal of Medicine and Surgery,
Savannah, Ga.:

Gentlemen—I already subscribe to more medical journals than I have time to read, but I have been so much pleased with your journal that I must ask you to put my name on your subscription list. I enclose \$2 herewith. Yours truly,

R. A. LANCASTER, M. D."

When a publishing house, in advertising a book, prints extracts from reviews made in medical journals, it presumably does so to impress the reader with the value of the book advertised, and it is customary to do this, quoting the most prominent journals, and those whose opinions carry most weight.

The New York Medical Journal has been carrying an advertisement of Thayer's "Lectures on the Malarial Fevers," and we notice with disgust that as a means of recommending this book to regular physicians a long extract is made from the "Hahnemannian," and none from any other journal. We consider this an insult to the medical profession of the United States, and an exhibition of execrable taste and worse judgment. Dr. Thayer must feel proud to see the only commendation of his book, in the aforesaid advertisement, coming from a "homeo-quack" journal. We marvel that he does not protest.

The October issue of the Quarterly Journal of Inebriety, Hartford, Conn., which is published under the auspices of the American association for the study and cure of inebriates, is a beautiful and very interesting issue. An article on Opium in India, from this journal,

we publish in part this month, the remainder to follow next month. Besides this the work is replete with items of value and interest, among which we may mention, "Inebriety Among Young Men," by George H. McMichael, M. D.; "Complete Blindness Due to Acute Poisoning from Overdose of Jamaica Ginger: Recovery Followed by Toxic Amblyopia of Ordinary Chronic Form, with Eventual Atrophy," by Archibald G. Thompson, M. D., Philadelphia, Pa. Several other good papers compose the work. We congratulate Dr. T. D. Crothers upon the valuable qualities and handsome appearance of his journal

We have received from Dr. Louis Fischer a reprint of his article published in the Medical Record of December 11th, 1897, on "The Clinical Value and Chemical Results of Using Prof. Gaertner's Mother Milk in Children," by Louis Fischer, M. D. and Herman Poole, F. C. S. In this very valuable article the author states: "Professor Gaertner in the preparation of his food has aimed to overcome what has been the great difficulty in infant feeding, namely, to reduce the excess of casein by a scientific process without the addition of chemicals. To achieve this result he employs a machine called a Pfanhauser Centrifuge, which makes four or eight thousand revolutions per minute. The apparatus consists essentially of a drum of steel, which revolves on its axis. This drum is filled with equal parts of fresh cows milk and sterilized water. The mixture contains approximately the same amount of casein as human milk, for cows milk undiluted contains about twice as much casein as human milk. The mixture is next poured into the centrifuge and the speed of the drum is carefully regulated, so as to separate the mixture contained into (1) a creamy (fatty) milk, and (2) a skimmed milk. The two portions so separated are then led off separately by suitable openings in the centrifuge." The author here gives a table of the chemical composition of fat milk as compared to human milk and cows milk diluted with one-half water. "If now three or four grams of milk sugar be added to every one hundred cubic centimetres of fat milk, the percentage of sugar is brought up to the level of sugar in human milk. This addition is made before sterilizing. The fat milk has the advantage over the diluted milk of having a higher percentage of fat, and also it curdles more slowly than diluted milk, and the curd forms a more flocculent precipitate." His guides for ascertaining the degree of assimilation were the following factors:

1. "The child's general condition as manifested by its appearance, appetite and sleep.
2. "The presence or absence of gastro-enteric disturbances, such as vomiting, colic, restlessness.
3. "The condition of the stools, constipation or diarrhoea, the number of stools in twenty-four hours.
4. "The gain in weight; weekly observations."

The author states that although his experience with this food has not been so great as that of Professor Escherich and Professor

Gaertner, he feels that he can endorse their statements regarding it. We regret that space does not permit our more fully discussing the elaborate chemical researches of the milk before feeding, and of the feces of the children treated with it, to ascertain its food value, and for obtaining as nearly as possible the percentage of undigested fat and casein. It was our good fortune, about two years ago, to see this food used in several cases at the Louisien Heilanstalt at Heidelberg, and we quite agree with what the author has to say regarding it. At that time Professor Gaertner's "fett milch" could be purchased in sterilized flasks from the grocers in most any town of South Germany at a moderate cost. Thus placing this valuable food in the reach of most everyone. Why could not some enterprising firm do the same in our country?

BOOK REVIEWS.

A Clinical Text Book of Surgical Diagnosis and Treatment for Practitioners and Students of Medicine and Surgery.—By J. W. MacDonald, M. D., Graduate in Medicine of the University of Edinburgh; Licentiate of the Royal College of Surgeons, Edinburgh; Professor of the Practice of Surgery and of Clinical Surgery in Hamline University, Minneapolis, etc. With 328 illustrations. Pp. 781. Philadelphia, W. B. Saunders, 925 Walnut Street, 1898. Price: Cloth, \$5.00; One-Half Morocco, \$6.00 net.

The great and rapid advances that have been made in recent years in the scientific knowledge of retrograde tissue metamorphosis, and of organic changes due to disease, and the causes which produce them, have been so overwhelming and convincing that the student (this includes surgeons, for if they cease to be students they will not long remain surgeons) of to-day, who wishes to keep fully abreast of the times, can no longer afford to consult for purposes, especially of diagnosis, for on diagnosis hinges treatment and its proper application, books even written a few years ago, for in modern questions they are of necessity behind the times. To those who wish to gain valuable knowledge and to be more thorough, methodical and intelligent in their labors, and have their work yield them good results we recommend this book.

We regret to see that the author in his preface states that surgical diagnosis is not dealt with in any work that claims to represent the most recent surgical knowledge. Where would the author place Senn's work, and Tillman's Principles of Surgery and Surgical Pathology? No one can call himself a diagnostician who is not well grounded in principles, and the pathologist, other things being equal, is the surgical diagnostician. The author has little or nothing to say, except in the preface, of the very important diagnostic points to be gained from bacteriological and pathological examinations, points

that cannot be gotten any other way, from causes that underlie so many surgical diseases. He excludes diseases of the eye, but includes diseases and injuries of the female generative organs. When renouncing one to the specialist, why not both?

Pregnancy. Labor and the Puerperal State.—By Egbert H. Grandin, M. D. and Geo. W. Jarman, M. D. Illustrated with forty-one photographic plates. The F. A. Davis Company publishers, Philadelphia.

There are no books which it gives a reviewer more pleasure to write about than those which he has not been hurried in reviewing, but which has been read and re-read until the work is an old and trusted friend. Such a one is the work we are tardily reviewing; a book we have learned to trust, which by experience we have found truthful, up-to-date and wholly satisfactory.

How many times in the two years that this work has been on our shelves, upon reference to it we have found the subject treated satisfactory in all respects. Perhaps our admiration for the work may spoil our quality as critics and reviewers, but it cannot prevent us from telling our friends that they will search far indeed, and in many languages, to find its equal. For the young practitioner it is a book nearly of necessity, and to them, as to all others, we advise its perusal.

The press work is good, and the illustrations (photographs) are wonderfully good; by far the best we know of in any book on obstetrics or allied sciences.

We have received from Mr. Saunders a most tempting list of publications promised for 1898. Of the works nearly ready we notice on on "**Genito-Urinary and Skin Disease, including Syphilis,**" by Bolton Bangs and Wm. Hardaway. Judging by the previous work of these well-known authorities, the book will necessarily commend itself to all desirous of keeping abreast of the times.

An instance of unusual enterprise is the forthcoming publication of "**Lehmann Medicinische Handatlanten**" with its beautiful colored plates, which will be issued in 7 or 8 volumes (in English, of course), each volume to contain from 50 to 100 large colored plates. The text is by some of the most eminent German authorities, while the translations have been supervised by well-known American clinicians as editors.

Of the numerous other books announced as forthcoming, we notice more particularly "**American Text Book of Diseases of the Eye, Ear, Nose and Throat,**" edited by Professors De Schweinitz and Randall of Philadelphia; "**An American Text Book of Pathology,**" edited by John Guit  ras; "**An American Text-book of Legal Medicine,**" by Professors Peterson, Haines and others. Professors Van Valzah and Nisbet are the authors of a new work on the "**Diseases of the Stomach.**" Prof. W. W. Keen has just finished the

work, which will shortly appear, on "**The Surgical Complications and Sequels of Typhoid Fever.**"

These works, with the "**American Year Book of Medicine and Surgery,**" edited by G. M. Gould, give an idea of the tempting works which will soon be offered to the medical public. It would be hard in any country to equal the attractions promised by that enterprising publisher, W. B. Saunders.

Sixteenth Annual Report of the Bureau of American Ethnology to the Secretary of The Smithsonian Institution. 1894-95.—By J. W. Powell, Director, Washington Government Printing Office, 1897.

We have before us this most elaborate and beautiful contribution to American Ethnology, and it is of especial value to medical literature on account of the elaborate paper by Dr. Manuel Antonio Muñiz and W. G. McGee on "Primitive Trephining in Peru." The paper is illustrated by photographs of 19 crania from different sides, showing the results of this practically prehistoric operation. A careful study of these crania has shown that the instruments used were chiefly or wholly of stone, and that, as the use of metal quickly followed the Spanish invasion, the operation must be prehistoric. As to the motive of the operation, the evidence in the largest majority of the cases points wholly to thaumatingy, with faint suggestions of therapeutic treatment in a few of the crania. It seems that in the earliest time the operation was done after death to obtain amulets, and later performed on prisoners or those condemned to death, with an incantational or quasi-medical ceremony. Starting as an aimless operation it passed on to empiricism, the forerunner of scientific medicine. Thus trephining, one of the boldest operations of modern surgery, is the only feature of modern surgery known to be of great antiquity. The Peruvian collection of crania, therefore, is a record of an important period in the unwritten history of surgery. We can commend this paper to all interested in ethnology and prehistoric man, and must again compliment the Directors of the Bureau of American Ethnology upon this elaborate and most scientific Report.

E. R. C.

New Book on Degeneration.—Dr. Warren B. Outten, Chief Surgeon of the Missouri Pacific Railway, has written a work entitled "Man's Inherited Martyrdom—A Fitful Study of Degeneration." Those who have had access to the MS. say that it is a book of remarkable power and that it is of intense interest. The work will appear as a serial in the Tri-State Medical Journal and Practitioner of St. Louis.

SOCIETY TRANSACTIONS.

CLINICAL SOCIETY OF ST. JAMES DISPENSARY.

STATED MEETING HELD JANUARY 1st, 1898.

DR. CORSON presented a patient upon whom ligation of the external carotid had recently been performed as a palliative measure in the treatment of inoperable cancer of the tongue, floor of mouth and inferior maxillary bone; at the same time making some remarks on the encouragement of surface growth, which are elsewhere reported in full. (See page 109.)

The stated paper of the evening on "Quinine in Malaria, Excluding the Simple Intermittents," by Dr. Van Marter (See page 102.), was read, and discussion opened by Dr. Graham.

DISCUSSION.

DR. GRAHAM.—I have found quinine in the continued form of malarial fever to be anything but a specific. Lauder Brunton brought out the fact that when bile is present in the stomach quinine by the mouth does little or no good, as it is rendered insoluble and is not absorbed.

It is my opinion that in this disease we have to deal with a toxemia, perhaps the toxine produced by the metabolism of the parasite of malaria, or more likely the lowered resistance and the altered condition of the blood and intestinal tract engendered by these parasites favors the bacillus coli communis in assuming a pathogenic form, and we really have, as Dr. Woodward long ago named it, typhomalarial fever. The bacillus coli communis, ordinarily an innocent saprophyte, may, under other conditions perhaps, become pathogenic and a very near relative to the typhoid bacillus. I do not mean to say that we have true typhoid and malarial fever at the same time in the same subject, but that after the plasmodia are no longer to be found in the blood by the microscope, the fever continues unabated and unaffected by quinine; therefore, it is evident to me that the fever is either due to malarial toxine or, more likely, to a toxine elaborated by the bacillus coli communis, over which quinine has no beneficial influence or effect.

It is interesting to think of the cause of fever in malarial poisoning. One of the causes in my opinion is the fact that a more rapid oxidation of the blood elements is produced by the growth of the plasmodium, for we do know that these organisms produce quick destruction of the blood plaques, and how, if not by oxidation? The more rapid oxidation is anywhere, other things being equal, the higher the temperature must be, for more rapid is the chemical change.

Quinine has been very disappointing to me in this disease, and I

have found it of little or no value unless supplemented by other drugs. Warburg's tincture, either the liquid or powdered extract, has served me well. There are cases that die with quinine given, even in heroic doses, at the proper time and despite all we can do.

DR. SIDNEY J. LANIER.—Dr. VanMarter's paper is on a line of observation that means a great deal to us as practitioners in this malarial region. I fully agree with the writer in that we do not have in quinine the best treatment for some forms of malarial fever, nor even in some of the irregular forms of intermittent.

Well do I know how many times I have made patients more uncomfortable, intensifying their headaches while making them more nervous and more nauseated by giving quinine in real malarial remittent fever.

I feel safe in saying that nearly every physician in our southern country who is familiar with what was so long termed bilious remittent fever will agree with Dr. Van Marter about the necessity for giving other drugs than quinine in continued malarial fever. And my opinion is, that if we have administered quinine freely for four or five days without getting well marked morning remission, with moist tongue and skin, we had better leave off quinine and use some other remedy. If we would study the use of the various preparations of quinine I believe we should find some form suited to nearly all conditions of the stomach, for it is a fact that the plain sulphate of quinine in the stomach of a patient who is nauseated and perhaps vomiting mucous and bile is only an increasing irritant. My experience is that in nearly all malarial conditions we get a better effect from the bi-sulphate than from either the sulphate or the hydrochlorate. I mention these preparations because it is upon one of them that we rely in nearly all cases where quinine is used, except in the use of the drug hypodermically.

Quinine in suitable doses at the proper time seems to be a specific for malarial affection in those cases which have the nearest approach to marked intermittency; therefore, the more continuous the symptoms the less does it act as a specific.

Quinine certainly does not cure every case of malaria fever, even though you have the patient *thoroughly cinchonized*. I have seen patients fully deafened by quinine and the fever go along unabated. And it is here that we do our patient an injury with the drug. Malarial fevers of nearly all types *can be cured without quinine!* Yet we have become so wedded to the remedy that we are inclined to discount other drugs, and forget the fact that it is not very uncommon to find persons with malarial fever who cannot take quinine from some existing idiosyncrasy. However, it is our good fortune to pull these patients through O. K. About three years ago I saw a man who had a typical malarial fever, who contracted his sickness while digging up the earth for laying gas pipes; his fever was markedly remittent. Of course I thought of quinine at once as the remedy,

and before I finished writing a prescription the patient assured me that he could not take quinine in any form; but I unwisely concluded that his previous medical attendants did not know as much about the administration of the drug as myself, and I forthwith ordered an acid solution of bi-sulph. quinia, thinking that I would get a quick effect, and that if any unpleasant symptoms should follow I would relieve them with bromide, antipyrine, or morphine. In an astonishingly short time after the patient took the first dose I was called back to find him suffering from a terrifying rash, was nauseated, nervous, greatly depressed and exceedingly bad off. After a few hours the quinine symptoms disappeared, but the fever rose to a high point. Again, I concluded that it was on account of the quinine in the stomach, irritating the mucous membrane, that had produced the bad symptoms; consequently, the following morning, I injected the drug hypodermically or administered it per rectum, for I was determined to give it a fair trial, particularly so because the malarial character of the attack was so well defined. Again, the second time, I was forced to regret my experiment, because, first, my patient was no better, and, secondly, because I had produced a new set of symptoms by having administered quinine. It was now that I was brought to my senses and looked for another remedy. I immediately ordered three drops of apiol every two hours, alternating with a formula so much used by Dr. Corson of this city, which contains Fowler's solution, tr. nux and tr. gelsemium. It was only about 48 hours after beginning this course of treatment when my patient was relieved of all his neuralgic pains and the fever began to fall. From that time it was plain sailing, for the patient got rapidly well. If I had kept a record of cases it would be easy to show that, in a number of patients who were unable to take quinine I had pulled them through with other drugs.

In reading from various writers upon malarial fevers it is not unusual to find where patients have been cured, even from intermittents, by other drugs where quinine had failed.

Our cases of continued malarial fevers in the southern country are evidently on the increase as against the decrease of the purely intermittent fevers, and the time has come when we have to study more closely the cases which need quinine and those which are best treated without this drug.

DR. OLIVEROS.—I have heard it said here to-night that Quinine can be given in very large doses, without getting any bad effects in the head, or otherwise. We have heard from one of the gentlemen present a very good definition of a specific. I now think that we are sadly in need of a definition of bad "effects." I have heard for the first time in my life, from one of the physicians here, that Quinine is given in doses of 60 to 100 grains, repeated in one or two hours. Such a procedure I think absurd, and nothing more than a waste of the drug. If no bad effects are had, it is simply, as must

necessarily be the case, that there is no absorption of that amount, or anything like it. If 5 or 10 grains of Quinine repeated every 2 hours, for a certain length of time, will not produce the desired effect on the fever in some particular case, it is my practice and my opinion that the drug should be discontinued, and some other plan of treatment adopted.

As I am here this evening only as an invited guest, I have not looked up the subject, but there are a great many points in Dr. Van Marter's paper with which I agree fully, and I think he has treated the subject in a very able manner. I must add my testimony to his that, in the continued form of malarial fever, Quinine has most decidedly little or no effect. In the great majority of cases it is a waste of time and Quinine; in fact, I might add that, personally, I never use the drug in these cases with one exception, and that is when there is a very sharp remission, especially at the tail end of the case. I then give two ten (10) grain doses, with the hope that I might get result enough to finish the case; in other words, I give the patient the benefit of the doubt; but even then it is my experience that the physician gets more disappointment than the patient does benefit.

It is not only in the continued form of malarial fevers that Quinine proves itself no specific. I have seen many cases of the intermittent form where the specific action seemed very slight. Any country physician will have run across cases where Quinine has been given faithfully, in correct doses and at proper times without any benefit until that particular patient has been moved from the neighborhood in which he contracted it. Likewise in malarial cachexias Quinine evidently is no specific, in fact, seems to do very little good without the usual auxiliary treatment.

DR. FITCH.—MR. CHAIRMAN AND GENTLEMEN: I have listened to Dr. Van Marter's paper and the discussions with much interest. Quinine is not the specific which northern clinicians claim it to be. They do not see malaria as it is found in its natural home. I have repeatedly treated cases of malarial poisoning in which Quinine prescribed in any form, dosage, manner or time of administration, had no effect whatsoever in controlling the fever. My observation leads me to assert that Quinine is not a specific or antidote to the plasmodium of the grave continued malarias or the toxins produced by them. Yet in the milder Tertian and Quartan types of malaria Quinine is a true specific if given in the proper dose and at the proper time.

I had under my care not long since a case of malaria (proven by microscopic examination), algid form, pernicious type, in which Quinine had been given in small doses for weeks as a prophylactic, yet this did not prevent the development of malaria. I prescribed large doses, 20 gr. bisulphate of Quinine, hypodermically, every 4 to 6 hours, produced cinchonism, yet the fever continued, with regular

paroxisms daily. I then gave the same preparation dissolved in normal saline solution subcutaneously, and later by intravenous injection, none of which influenced the disease. I saw this patient die, and witnessed the failure of Quinine as a specific.

I have had only a limited experience with Quinine in malarial Hemoglobinuria. I, in common with many others, have come to the conclusion that Hemoglobinuria if not actually caused by Quinine, to be a condition in which Quinine is an absolute poison. It is claimed by many writers (Plehn, Richardson and others) who have had favorable opportunities to study the action of Quinine in these cases, that Quinine may produce these grave symptoms, and that it is of no value as a remedy in these cases.

Dr. David Cerna, of Galveston, in speaking of his experience with Quinine in malaria on the Gulf Coast says, "in those cases where he finds the Plasmodium of Laveran, and in which Quinine proved of no value as an antidote or specific, he has prescribed, with the most happy results, Phenocol Hydrochlorate in 5 to 10 grain doses, 3 times a day for 4 or 5 days, cutting the disease short after Quinine had failed completely.

DR. CORSON.—I differ greatly with the views expressed by Dr. Van Marter. In a paper of this character the Doctor should have defined in the beginning what he meant by a specific, for, taking malaria in its entirety, Quinine is a specific and is so recognized all over the world. By a specific we mean that drug or substance which has the special property of preventing or curing a particular disease. Of course, taken in its absolute sense, no such remedy exists, for there is no specific which will prevent or cure *every* case of that particular disease over which it has this reported special influence. Even those drugs most worthy of the name fall far short of being absolute specifics; though they may cure a large proportion of the cases brought under their influence, a certain proportion will go free. If you add a barium salt to a dilute solution of sulphuric acid, you will always get a white precipitate of barium sulphate; but the human body, viewed as a solution, is too subtle and too heterogeneous a combination to give a reaction with any reagent which can be predicted with any certainty worthy of the name.

The continued type of malarial fever means a greater involvement of the system from the malarial poison than in the simple intermittent type. That is recognized, and it stands to reason that with this greater poisoning the less rapid and the less effective is the action of Quinine. And we also see cases where this poisoning has gone so far that neither Quinine nor any other drug avail, and the patient will die. I know that there are other drugs than Quinine which will cure intermittent fevers. I know that in certain forms of malarial toxæmia and anæmia Quinine alone is quite powerless to effect a cure, and that iron, arsenic and strychnia with the mineral or organic acids must be brought in. I know that in certain individuals

Quinine greatly aggravates the case; due to a peculiar idiosyncrasy, and I have even seen cases where Quinine might act as a fatal poison if given in large doses; and yet I will state most emphatically that, after treating malarial affections in Savannah for eighteen years, I have cured by Quinine a large majority of my cases of continued remittent fever, of larval forms of malarial fever, due to mild yet chronic malarial toxæmia, and a fair proportion of these chronic forms when the toxic symptoms are more marked. The fact that the mortality is high in the pernicious malarias, be they Hæmorrhagic, icteric or algid in type, does not militate against the specific action of Quinine. When the malarial toxæmia has gone this far there is such a paralysis of nerve centers that the system responds not at all, or but slightly to any drug.

In certain continued types of fever in Savannah, which are plainly not malarial, but point to an enteric intoxication, be it a true typhoid, or due to the bacillus coli communis, or to other toxic agents from the alimentary canal, I admit that Quinine is useless; in fact, I know of no drug which cuts the disease short. In the beginning, however, before the nature of the fever is determined I give Quinine to prove or disprove the malarial character of the case. I regard this therapeutic test as a valuable one. I thus go so far as to state that, in my opinion, Quinine is most worthy of the name of specific in malaria, be it intermittent or remittent in type; that it is always the first drug to be considered, and that it is only when conditions arise which are *secondary* to the acute primary poisoning, that we must call in the aid of other drugs.

DR. DANIEL.—MR. CHAIRMAN: After hearing Dr. Van Marter read his paper I am inclined to think the doctor rather exacting in his ideas as to what constitutes a specific. As for Quinine being a specific for all the sequelæ and complications of malaria, no one has ever set forth such claims, any more so than that antitoxine and mercury will correct all the sequelæ of diphtheria and syphilis, and yet they are recognized as specifics if administered at the proper time and in right amounts, depending upon the stage of case and patient.

So we must bear in mind in discussing this paper that there is no such thing as a specific in the narrow sense of the word, but as ordinarily used Quinine is the *only specific* for malaria. In the majority of instances the failure to recover on the part of the patient is not due to the want of anti-malarial properties in the Quinine, but to the timidity of the physician, who fears a harmless drug, and as a result will attempt to cure a disease that has permeated to the most remote parts of the human body and is sapping one's life blood with the pitiful amount of 3 to 15 grs. of quinine, administered in twenty-four hours, and here they will stop and say the patient is cinchonised, because he has "tinnitus aurum" and Quinine given above this amount will pass through the body unchanged and have no effect.

Let me ask the advocates of this theory—for it is nothing but a theory—if they would stop instilling atropia into the eye for an iritis with the pupil to a half or three-fourths dilatation and some dryness of the throat? There are your physiological effects, but you dare not stop the atropia until your iritis subsides and you carry it to a maximum dilatation of the pupil if needed to accomplish the desired end. So I will beg of the gentlemen to remember that the dose of any drug is not the amount it takes to have a physiological effect, nor is it a fixed amount, but is the quantity that it takes to have the desired results in the particular case under consideration. So in administering quinine, don't stop with 5 grs. a day because the ears ring, but give the amount that it takes to break up the fever and prevent a return of the malarial paroxysm; give 30, 90 or 120 grs., if needed, or even more, and you will surely cure your patient, unless he was moribund when called to see him.

Another important factor in administering Quinine is the form in which it is given. I prefer the sulphate and it either in solution with dil. sulphuric acid or made up in fresh pills with dil. sulphuric acid and glycerine. Again, I must differ with the doctor, in that I prefer giving Quinine in the stomach, when possible. My limited experience has about convinced me that subcutaneous injections of quinine for the cure of malaria are about on a par with the subcutaneous injections of bi-chloride mercury for the cure of syphilis, which is another good theory. We can get all of the physiological effects of the mercury as well as of the Quinine, but we all know that the injections of mercury will not cure syphilis in as short a time as is claimed, nor have I found Quinine given under the skin to act near as efficiently as when given in the stomach.

Dr. Van Marter states that very often in the "hæmoglobinuria" form of malaria, Quinine will cause a return of the so-called bloody urine. Again I must differ with the doctor, and would like to ask him if *he* ever saw a case in which it occurred. I have seen a few cases of hæmoglobinuria due to malaria and in the intermittent type I have never seen a recurrence of the hæmoglobin after administering Quinine in doses of 30–60 grs. six hours prior to the anticipated paroxysms. If you have a remittent type of malarial hæmoglobinuria, don't wait for the fever to go off (for it might be the patient instead of the fever that will go off), as I have heard advised, for it is not going off unless you make it with large doses of Quinine. And begin giving it immediately that you see the patient; give him from 60 to 120 grs. within an hour. If his stomach will not tolerate it, put it under his skin as next best. And I must say that I think Dr. Van Marter's idea of diluting the solution well is a good one. But, gentlemen, never be afraid of Quinine causing a recurrence or increase of the hæmoglobin; it is want of Quinine that does it. As for malarial hæmaturia, I have never seen it unless as a local trouble in conjunction with a cystitis.

I cannot fully agree with Dr. Van Marter in his praise of War-

burg's tinct. I have used it repeatedly without any good permanent effects—better effects being obtained from Quinine and Calomel.

DR. LATTIMORE.—MR. CHAIRMAN AND GENTLEMEN: My experience agrees with that of Dr. Corson, that there are comparatively few cases in Savannah of simple intermittent fever. I now have under observation three interesting cases of malaria, with different manifestations. Blood examinations have been frequently made in these cases, and although the symptoms have nearly subsided under treatment—Quinine sulph. (by mouth)—the blood has practically remained unchanged. At times, the plasmodia are fewer in number, at other times more numerous. These are cases of chronic malaria, which have existed over two years and have been under treatment and observation several months. They show in a very limited way the effect of Quinine on the symptoms and blood in some cases of chronic malaria.

What has been of especial interest to me this evening are the large doses of Quinine that some men are able to give, with seemingly, only, good results.

DR. SIMMONS.—I am a believer in Quinine, and yet I have seen cases of malaria in which Quinine aggravated the symptoms. I will speak particularly of the hemorrhagic types of this fever, of which I have observed two forms, the sthenic and the asthenic. At Toombsboro, Ga., near which I have lived, it is the experience of the physicians that in the asthenic type, a form of chronic malarial poisoning, with temperature normal or slightly above, that Quinine does not cure when given in either large or small doses, their chief reliance being morphine hypodermically. In the sthenic type, preceded by calomel, Quinine in heroic doses does certainly act as a specific. I agree with Dr. Van Marter, that in the fever where there is no marked remissions or intermissions, that quinine will often fail. I differ with him as to dosage, believing that large doses, from 30 to 60 grs., are often necessary to cure obstinate cases.

CLOSE OF THE DISCUSSION BY DR. VAN MARTER.—I am gratified to find that so large a proportion of the gentlemen agree with my views. To Dr. Corson I would state that it had not seemed to me necessary to teach others the definition of the word specific; he will also remember that I defined the types in which Quinine usually fails to act, and I must regret that Dr. Corson avoided discussing just those types.

To Dr. Daniels, as well as Dr. Corson, I will say that I do not claim Quinine to be *the primary cause* of hematuria, but it is the cause of its reappearance quite frequently. My observations have been based upon a few cases only, but I studied particularly the work of Plehn, who saw over 500 cases. You will notice how very closely indeed the low, algid types described by Dr. Simmons as oc-

curing in Toomsboro coincide in every way with my own observations, and again how the experience of the local practitioners fits that of their confrères in India and Africa in regard to the use of opium.

Drs. Corson and Daniel both failed to catch the drift of my ideas, viz, that Quinine is specific where you see the patient early enough. I grant that, but it fails utterly in all cases where we have the toxin to deal with, and they did not differentiate between the two.

As to the enormous doses of Quinine advised by Daniels, I believe them to be useless; the Quinine is not absorbed and probably fails to be so owing to the presence in the stomach and bowel of an excess of altered bile, which Dr. Graham so aptly reminded us of in his discussion.

The dose of Quinine is that which within two hours makes the ears ring; that is the physiological rule, be it 2 grs. or 200 grs.

Dr. Graham is quite right when he insists that we have a typhomalaria which has been termed by Italian clinicians, particularly Baccelli, "typhoid-like subcontinuous malaria." The idea of Dr. Graham's, that the bacillus coli communis takes on a virulent form in these cases, acting then as a separate infection, is one worthy of much study, appealing as it does to common sense.

I was very much interested to hear that Dr. Graham found plasmodia in a fetus' blood, as this is the first time that such an observation has been made, the more convincing as we all know that Dr. Graham is a thoroughly competent hematologist and would not make an error in such an examination.

It is most gratifying to find that both Drs. Lanier and Oliveros' experiences and observation coincide with mine, as do in a measure those of Dr. Simmons, with whom I most heartily agree that, taken as a body, the country physicians are the closest and most accurate observers in any country, and that where their experience is at variance with our theories they are most apt to be correct.

Dr. Fitch also agrees with my views, which is certainly gratifying to me, but Dr. Paige does not. He instances patients in Boston who took 2 grs. of Quinine three times a day for six months without harm. They lived in a totally different climate, subject to a totally different form of infection and toxine, and the case is so different that I will not even attempt to answer the whys and wherefores.

Dr. Lattimore's cases are most interesting but do not correspond to the types of malaria described by me as particularly resistant to Quinine; they were not cases of *toxæmia*.

In closing, I desire to thank the gentlemen present for their attention and evident interest in this subject, and hope that the entire subject will be worked out in the near future.

RICHMOND ACADEMY OF MEDICINE AND SURGERY.

Regular meeting held December 21, 1897. Dr J. N. Upshur (President), in the chair. Dr. Mark W. Peyser, Secretary and Reporter.

Election of officers for the year 1898, resulted as follows: Dr. M. D. Hoge, Jr., President; Dr. E. C. Levy, First Vice-President; Dr. A. L. Wellford, Second Vice-President; Dr. A. C. Palmer, Third Vice-President; Dr. Mark W. Peyser, Secretary and Reporter; Dr. W. H. Parker, Assistant Secretary; Dr. R. B. Teusler, Treasurer; Dr. R. W. Nichols, Librarian.

REPORT OF CASES.

VOMITING OF BLOOD BY ONE-DAY-OLD INFANT.—The President reported a case the like of which, he said, he had never seen before. On Sunday afternoon, 19th, he delivered a primapara, after an easy labor, of a girl baby weighing six pounds. It nursed heartily and there was no indication of trouble for twenty-four hours, when it threw up blood and colostrum. The history of the parents was unexceptional. Within a few hours after vomiting, there were frequent operations containing large amounts of meconium and blood. The skin and mucous membranes were pallid, the fontanelles depressed, and sutures prominent. He was at a loss to account for the hæmorrhage; but his idea was that there existed engorgement of the liver with congestion of the portal system and hyperæmia of the stomach and bowels. Thus, he prescribed calomel, two grains, and chalk, one grain, divided into ten powders, one powder given every hour. This afternoon (21st), the child was getting under the influence of the calomel, and as a result, there was less blood in the last three operations, and the child was progressing very satisfactorily. After mentioning the case to several medical friends who had never seen or heard of such a case, he consulted the American Text Book on Children, and found reports of several cases with suggestion of just such treatment as he had given.

FULMINANT APPENDICITIS.—Dr. George Ross said that in the past week, he had had the only case of fulminating appendicitis he had ever seen. The patient was a man, age twenty-one, of feeble physique, night operator of the long-distance telephone. He had had bronchitis and recovered. On the night before his death, he seemed perfectly well. When seen at 3 P. M., there was a temperature of 102.5°; pulse, 130; and marked tenderness. At night, temperature was 101.5°, pain diminished, but general condition unfavorable. A consultation was held, with the result that the patient was taken to Virginia Hospital, but died before he could be placed on the table.

APPENDICITIS.—No **PATHOGNOMONIC SYMPTOM USUAL.**—Dr. Ed. McGuire said he had seen a large number of cases of appendicitis, and had reached the conclusion that no single symptom could be

relied upon to determine an operation. In the case of Dr. Neblett, there was suppurative peritonitis with a necrotic appendix. He had been improving, and on the evening of his death, was thought to be out of danger; but he was seized with convulsions, and in three hours was dead. The urine was loaded with albumen.

Last Monday morning, he saw a young man who had had a cramp the night before while on the train. There was a regular pulse and no fever. On the right side was a little tenderness. The bowels were free, but he had vomited. Thinking it was cholera morbus, calomel was prescribed. In the afternoon, upon making a second visit, was found increased tenderness, with a temperature of $100\frac{1}{4}^{\circ}$. Appendicitis was diagnosed, and the patient taken to Virginia Hospital and operated upon the next day at 1 o'clock. A necrotic appendix was found. Recovery ensued.

Dr. McGuire said, in conclusion, that he had again and again seen cases where the symptoms were slight, but the course of the disease bad. He thought if all cases could be operated upon within twelve hours, mortality would be reduced 1 per cent.

OCCCLUSION OF OPENING INTO CÆCUM POSSIBLE CAUSE OF APPENDICULAR ABSCESS OF FULMINANT APPENDICITIS.—Dr. W. T. Oppenheimer observed that in the fulminating form the appendix was always occluded next to the cæcum, distension resulting from accumulation of gas or pus. In a number of cases the appendix could be cut off and no opening seen; therefore, he believed that in these the organ could be taken away close to the cæcum, no escape of pus resulting because of the agglutination. It was possible that a ligature was not necessary in these instances, and not applying one would prevent secondary hæmorrhage. He had observed cases without fecal fistula, in which the appendix had sloughed off and was floating in pus. Never having seen the point mentioned in any literature, he was of the opinion that it and the question of ligature should be investigated.

Dr. Hugh M. Taylor thought appendicitis capable of furnishing a greater number of surgical surprises than any disease with which he was familiar; and while it had claimed the lion's share of professional thought for the past ten years, we were only upon the threshold of knowledge as regards many of its most important phases. Its etiology was an open question: a terminal circulatory supply; a short mesentery; a structure of feeble resistance; an estuary in the fecal current often blocked; and an ever-present micro-organism were credited as etiological factors; but we must ascertain more of its causation before we could hope to do anything in the way of preventing it. Ideal surgery was, of course, preventive surgery, and it was to be hoped that future evolution of the subject might attain such an end. Individual and collective professional opinion as to appendicitis—its etiology, symptoms and treatment—presented a succession of acrobatic changes. He thought he was correct in claiming that many more conservatives were becoming radical in their views as to

the importance of early operative interference, and thorough work whenever the condition of the patient warranted. His experience fully sustained the conclusion that an early resort to operation found the patient sufficiently strong to endure complete work—*i. e.*, strong enough to bear the prolonged anæsthesia, removal of the appendix and pus cavity, unmatting of the bowels, resection of infected omentum, etc. He would impress the idea that an early operation was conservative in that it sought to prevent pus collections and adhesions of the appendix, bowel and omentum, and the serious complication of septic, purulent or fibrino-plastic peritonitis. He contended that at some time in the history of every case of appendicitis, it was entirely a local phlegmon, and this was the elective period for operative interference.

Some of his friends, medical John Jaspers, rarely saw cases of appendicitis, and never met with cases calling for operation. When a practitioner of experience told him he never had torn perineal, he felt like telling him "Your eyesight is defective," or "You do not lift up the sheet to look." So when a man told him he never met with cases of appendicitis, he was tempted to urge him to study its symptoms, and was almost willing to promise him acquaintance with a surprising number of cases.

Typical appendicitis should be as easy to diagnose as typical pneumonia, typical typhoid fever, etc; but, unfortunately, we met with a good many cases which were atypical, and in this class, the differential diagnosis was not always easy. Three conditions in the right half of the abdomen and pelvis notably, presented symptoms simulating some one of the clinical types of appendicitis. He alluded to gall-tract and tubo-ovarian inflammations and displaced right kidney with renal or Dietle's crisis. The diagnosis was, of course, easier in men, inasmuch as cholelithiasis and its consequences—cholangitis, cholecystitis, empyema of the gall-bladder and gall-tract colic were so much more frequent in women. Displaced kidney and its effects were likewise more common in women, and usually occurred on the right side. Inflammation and suppuration from tubo-ovarian disease, and that incident to appendicitis, might present symptoms in common, but usually, the differentiation could be made. The intimate lymphatic and vascular connection between the right broad ligament and the meso-appendix should be borne in mind, as it explained the frequent co-existence of appendicitis and right tubal inflammation. Conditions less frequently and less positively, obscuring diagnosis of appendicitis were typhoid fever, ileus, intestinal indigestion, tubal gestation, gastric ulcer, hysteria, etc. He had at the present time, two cases of phantom appendicitis. In both, he was satisfied that the morbid condition existed only in the nervous system. Both patients were able to simulate many of the symptoms of appendicitis, as localized pain, muscular rigidity, etc. He was obliged to anæsthetize one in order to satisfy himself as to diagnosis, while the other spent sleepless nights and anxious days,

and upon one occasion implored him to operate, so that he need not endure another such night of agony.

Dr. Ed. McGuire said if Dr. Oppenheimer's suggestions were followed, there would be liability to secondary infection. He had seen fecal matter in more than one instance in such cases.

PROGRESS

—OF—

MEDICAL SCIENCE.

THERAPEUTICS.

PYOKTANIN.—Pyoktanin (Methylene blue), first used by Mosetig for cancer, has recently been employed with much success for the diagnosis of latent kidney lesions. Where the kidneys are healthy the urine is turned a deep blue within five hours. The dose is from one to five grains daily. It has been found to be a valuable agent in the treatment of Bright's disease, cystitis, gonorrhea, gastric hyperacidity with vomiting and pain, malaria, neuralgia, migraine and those infected with *filaria sanguinis hominis*. It may be taken in pills, capsules or solution, and the drug should be stopped every few days and give the patient a rest before resuming its use.

ORPHOL.—Beta-naphthol bismuth—Orphol—has been found to be a valuable agent in the treatment of the diarrhoea of tuberculosis, as well as in some forms of infantile diarrhoea. The adult dose is 15 grains, taken two hours after food, and repeated in two hours if needed.

CALOMEL AND ACIDS NOT INCOMPATIBLE.—At the 8th Italian Congress of Internal Medicine, A. Jovane stated that experimentation with dogs, and tests of sixty small children, necropsies of others, etc., had demonstrated that the prejudice in regard to the incompatibility of calomel with acids was unfounded. He administered the calomel with lemonade made with citric, tartaric, hydrochloric acid, orange juice, salty bouillon, chlorid of ammonia, etc., and there was not the slightest intolerance, and no lesions were found in the alimentary canal of moribund children thus treated, showing the non-formation of corrosive sublimate in the combination of calomel with the chlorids, acids and albumin.

[This coincides with the experience of many physicians in the South.]—THE EDITORS.

THE DIAGNOSIS AND TREATMENT OF CHRONIC GASTRIC CATARRH.—F. H. Murdoch, Pittsburgh, Pa. (*New York Medical Journal*.)

Among the symptoms mentioned were coated tongue, loss of

appetite, distress in stomach, bloating and belching, nausea and vomiting, vertigo, palpitation of the heart, constipation, insomnia, headache, loss of energy, and diminution in weight.

Chemical examination of the stomach contents after a test meal is an important measure, but unless more than one examination is made it may prove misleading.

In diagnosing chronic gastric catarrh the following must be excluded, the gastric neuroses, ulcer, cancer, and atrophy of the gastric glands. In regard to atrophy of the glands, a constant absence of rennet and the rennet zymogen forces one to diagnose this pathological change.

As regards treatment, the patient should be advised to sleep in a well-ventilated room; keep regular hours; meals at stated intervals; eat slowly; masticate food thoroughly; drink nothing with meals; bathe frequently; regular, open-air exercise, and a daily morning evacuation. Diet must be selected for each individual case; avoidance of proteids if hydrochloric acid is absent; milk if rennet is absent, substituting kumys and buttermilk, and the administration of take-diastase in absence or diminution of the saliva; hydrochloric acid if none is being secreted. Lavage, if there is much mucus, should be employed.

THE TREATMENT OF GOUT.—What is gout? Must we believe with Professor Bouchard that it is a disease caused by scant nutrition, or with Lecorche that it is a trouble due to exaggerated nutrition? Or shall we think with Murchison that it results from hepatic insufficiency, or again explain all by uræmia as Garrod does, or think with Sir Dyce Duckworth that it is a question of bulbar trophoneurosis? Shall we consider it a proteiform dystrophy which may bring into play one or the other of these processes? This opinion would perhaps be the wisest. In any case it does not carry with it an absolute or doctrinal idea, and consequently one which results in theoretical treatment which is not even symptomatic. A useful mode of treatment ought to be symptomatic when gout is involved. The sufferer from gout demands relief, that the articulations may be reduced, that he may eject uric acid and urates instead of carrying them into the tissues and especially into the articulations. What medication can fulfil this complex requirement? Is it salicylates, antipyrin, iodine, quinine, lithia, the alkalies, or what? Each of these substances has its indications and its line of action, we might say, but no one alone can respond to all indications. There is, nevertheless, an old remedy that produces these various effects: it is colchicum. Unfortunately colchicum contains certain acrid substances which act as an emetic. It quite frequently cannot be tolerated. Some years since Lartigue, a member of the Academy of Medicine, tried to do away with these secondary effects while preserving to the remedy its peculiar activity. He prepared small pills, in which he put five centigrams of extract of colchicum deprived

of its nauseous elements. He added a small dose of sulphate of quinine and digitalis, and enveloped the whole in a resinous substance. This remedy he employed upon himself during the rest of his life without feeling any disagreeable effects, and was entirely relieved of his sufferings from gout. The pills should be made of absolutely pure extract of colchicum, and covered with some resinous substance, and then again with thin goldleaf. In this way they traverse the stomach intact and dissolve only in the intestine. The colchicum liberated here easily penetrates to the tissues, modifies nutrition, acts on the trophic articular nervous system, and perhaps directly on the articulations. It calms the pain, causes the attack to cease, and reduces the size of the articulations. The patient should commence with two pills, one eight hours after the other. After each he is to eat something or drink some hot infusion. Then it will be necessary to regulate treatment in the following manner: Two pills in the morning, one at midday, and one at dinner. The following day he can take two pills on retiring, and four during the following day, taking one when he retires. In a chronic case it will be well to prescribe one pill daily at meals for five days, then nothing for ten days, then five pills daily for five days, etc. It is often useful to complete the action of the colchicum by giving an alkaline powder in the interval. One of the best contains soda, lithia and magnesia, combined with carbonic, citric and benzoic acids. By this means the solution and elimination of uric acid and the urates are said to be effected.—*La Médecine*, October 2, 1897.

REMEDY FOR DIABETES MELLITUS.—Prof. Reynold W. Wilcox in a paper entitled, "An Old Remedy for Diabetes Mellitus" (*Med. Rec.*, January 1st), after reminding the reader that jambul has been nearly forgotten, details some recent experiences with this apparently valuable drug, and in closing says:

Recently my attention has been called to a preparation which promises to yield the beneficial effect of jambul. The formula is:

R: Jambul.....	50
Buckthorn bark.....	20
Celery.....	5
Aromatics (Paraguay tea).....	25

The buckthorn bark is introduced to counteract the constipating effects of the jambul, to which allusion has already been made. The excipient, Paraguay tea, contains a very satisfactory percentage of caffeine, which is undoubtedly useful for the weak hearts so generally met with in diabetic subjects. Altogether it is not a disagreeable preparation when administered in from two to four drachm doses every four hours. Thus far the results have been eminently satisfactory. If it should be found that the questions of pharmacy have been solved in this preparation, we can accept without reserve the dictum of Levashev, of Kazan, who believes that jambul is superior

to all other known remedies in the treatment of diabetes, according to the *American Medico-Surgical Bulletin*, September, 1897.

[We think it well worthy of trial.]—THE EDITORS.

TURPENTINE IN TUBERCULOSIS.—Dr. J. S. Prettyman of Milford, Del., in a recent issue of the *Medical Record*, asks the question whether the creosote treatment of tuberculosis is not about “played out?” He says: It has certainly had its day, because no good seems to come of it. Turpentine in emulsion is just as good, if not better, and is far less disagreeable to take and much better tolerated by the stomach. It should always be administered on an empty stomach and at least one hour before taking food. It is an antiseptic of power, and stimulates the general glandular system, especially the mesenteric glands. I greatly prefer it to creosote, and usually administer it in the following formula:

℞ Olei terebinth..... 3 ss.
 Crete prep. et
 Sach. alb.....ää 3 ij.
 Pulv. acac. et
 Aquæa cin.....ää q. s. emul. 3 iv.

S. Desertspspoonful three times a day upon an empty stomach (“shake” label).

I believe the disease to be one of malnutrition, originating in the blood-making organs, and that the pulmonary and other symptoms are secondary, with the bacilli following and not preceding the lesions. The primary indication, then, is to aid the system in making a full supply of normal blood, and in accomplishing this the cure is wrought. Whatever promotes this is beneficial, and whatever retards this is injurious and harmful.

The best general medical treatment that I have ever employed in the disease is the turpentine mixture as indicated above, with whiskey saturated with Turk Island salt, one hour after each meal. I usually put one-half pound of the salt crystals in a quart of whiskey, so that the liquor is supersaturated, many of the crystals remaining undissolved. The dose is regulated according to the weight, age, habits and condition of the patient, always diluted with water. This seems to promote digestion, assimilation and all the bloodmaking functions, and at the same time it retards tissue waste. Of course all other hygienic measures should be applied, and unusual symptoms should receive attention as they arise. It may also be necessary to withhold the turpentine for a few days at a time, either from its effect upon the vascular system in drying the mucous membranes or its action upon the urinary tract. A number of incipient cases have been cured by this treatment in my hands, and the only objection I have found to using it is that many patients will not discontinue the treatment at my bidding. It seems to them so beneficial that they cannot survive without it.

THE ABORTIVE TREATMENT OF INFLUENZA WITH CALOMEL.—According to the *Presse médicale*, this treatment, which is recommended by Felsenthal, is very simple and consists in the systematic administration of calomel (*Revue médicale*, December 8th). An experience during the first epidemic of influenza showed notably that calomel, administered before the third day after the onset of the disease, cut it short and checked the appearance of the ordinary complications of epidemic influenza.

The treatment is carried out by Felsenthal in the following manner: In all cases in which he sees the patient before the third day after the onset of the disease he begins by giving calomel; three grains in two doses to men, two grains and a half in three doses to women, and to children fifteen one-hundredths of a grain for every year of their age.

A very rapid amelioration follows the administration of this drug. From six to ten hours afterward the very high temperature falls, the cephalagia and the pains in the back diminish or completely disappear, the cough ceases, convalescence takes place, and the patient is completely cured, more frequently at the end of two or three days. There remains only a slight anorexia which is easily overcome by the administration of some bitters.

In the large majority of cases the calomel is sufficient to bring about recovery. In certain cases, as adjuvants only, Felsenthal employs moist bandages around the thorax if there is not a decided fall of the fever; analgetics, such as antipyrine and phenacetine, if the pains persist; and sodium iodide if inflammatory symptoms pertaining to the respiratory tract exist. To men Felsenthal is in the habit of giving, at the same time with the calomel, hot whisky or hot wine, in order to provoke abundant sweating.

PRURITUS OF THE VULVA.—After as far as possible eliminating the cause, Dr. Morain (*N. Y. Med. Jour.*) orders vulvar lotions to be used night and morning of very hot water, to which 1 per cent. of chloral, coal tar or aromatic vinegar has been added. In addition to this, the affected region should be painted with the following solution:

R̄ Cocain. hydroch.....	gr.	15
Aq. dest.....	gr.	150

Dr. Morain also makes use of the following ointments:

R̄ Menthol.....	gr.	45
Olive Oil.....	gr.	15
Lanolin.....	gr.	90

R̄ Potass bromide,		
Salicylic acid.....	ää. gr.	15
Glycerole of starch.....	gr.	300
Calomel.....	gr.	6
Ext. belladon.....	gr.	3

He also recommends the following solution, which is to be used as a lotion:

R̄ Mercury bichloride.....	gr. 30
Alcohol.....	gr. 150
Rose water.. .. .	gr. 600
Aq. dest.	14 oz.

If these remedies fail, says Dr. Morain, electricity, either the continued or the interrupted current, should be tried. In particularly rebellious cases, when the itching resists all kinds of treatment, resection of the tissues of the affected parts should be resorted to.

NUTRITIVE VALUE OF SUBCUTANEOUS INJECTIONS OF OIL.—It is reported from Turin that 30 to 100 grams of olive oil injected into the subcutaneous tissues are absorbed rapidly and effectively, serving as a nutriment, as evidenced by the increase in weight and general well being. This method of alimentation is therefore recommended whenever rectal alimentation is necessary. It reduces the amount of nitrogen eliminated, and has proved especially effective in two cases of diabetes.—*Semaine Med.*

OBSTINATE VOMITING.—The following is often useful for the relief of obstinate vomiting:

R̄ Rectified spirit.....	3 iiss.
Menthol	3 j.
Tinct. of nux vomica	3 ss.

M. Sig. Ten drops to be taken every hour in a teaspoonful of chloroform water.—*The Practitioner.*

PRICKLY HEAT.—

R̄ Spir. æther. nitro.....	fl. 3 j.
Magnesii sulphat.	3 j.
Ol. cajuputi.....	m j.
Syr. Tolu.	fl 3 ij.
Liq. magnesii carb.....	fl 3 ij.

M. Sig. Teaspoonful two or three times a day.—*Godhart and Starr.*

HYPODERMIC PURGATIVE.—

R̄ Caffeine,	
Chloral.....	ää gr. 7½
Aq.....	m 75

Sig. Inject fifteen minims.—*Ewald, Journal de Medecine de Paris.*

RHUS RADICANS IN THE TREATMENT OF NOCTURNAL INCONTINENCE OF URINE IN CHILDREN.—The *Indépendance médicale* for November 17th describes Saint-Philippe's treatment as follows: One part of the dried leaves of the plant macerated for two weeks in five parts of alcohol (60°). Children under six years old may take

five drops of this tincture night and morning; as much as forty drops may be given older children. If no improvement occurs in three weeks, it is useless to go on with the use of the drug. If the malady is overcome, the employment of it should be repeated from time to time.

A WINTER REMEDY.—That Codeine had an especial effect in cases of nervous coughs, and that it was capable of controlling excessive coughing in various lung and throat affections, was noted before its true physiological action was understood. Later it was clear that its power as a nervous calmative was due, as Bartholow says, to its special action on the pneumogastric nerve. Codeine stands apart from the rest of its group, in that it does not arrest secretion in the respiratory and intestinal tract.

The coal tar products were found to have great power as analgesics and antipyretics long before experiments in the therapeutical laboratory had been conducted to show their exact action. As a result of this laboratory work we know now that some products of the coal tar series are safe, while others are very dangerous. Antikamnia has stood the test both in the laboratory and in actual practice; and is now generally accepted as the safest and surest of the coal tar products. Five grain "Antikamnia and Codeine Tablets," each containing $4\frac{1}{2}$ grains Antikamnia, $\frac{1}{4}$ grain Sulph. Codeine, afford a very desirable mode of exhibiting these two valuable drugs. The proportions are those most frequently indicated in the various neuroses of the throat, as well as the coughs incident to lung affections.

MEDICINE.

TREATMENT OF BURNS.—M. B. Werner (*Philadelphia Polyclinic*, Oct. 30, 1897) claims excellent results from the use of a moist antiseptic dressing in burns. The procedure recommended is as follows:

1. Place the burned member or surface in a carbolyzed bath of from two per cent. to five per cent., depending on the age of the patient and the extent of the injured surface. A threefold effect is gained by this—i. e., antisepsis, asepsis, anesthesia.
2. Remove all the acid solution by a second bath in the physiologic saline solution.
3. Dust the entire surface with a powder containing acetanilid (one part) and compound zinc stearate (five parts).
4. Cover surface with narrow strips of Lister's green protective, or, if economy must be studied, thin gutta-percha tissue can be used instead.
5. Place wet sublimated gauze, ten to twenty thicknesses, over and around the surface, followed by ordinary bandaging.

The subsequent dressings differ only in one or two points from the first, as stated above. The carbolyzed bath is substituted by one of either the saline solution or a weak solution of mercury bichloride,

followed by a spray of hydrogen dioxide, which will aid in removing all the pus and loose dead tissues; after this the surface is dusted with the powder, and protective strips, gauze and bandages are applied. These dressings are changed as often as needed, the extent and depth of the burn making its own rule, usually known by the amount of drainage and odor.

The advantages of this treatment over and above that of lotions, oils or salves are: freedom from any accumulation of fats with dead epithelium, encouragement of a healthy epithelial granulation under a clean moist dressing, the Lister protective serving in the double capacity of preserving the new epithelial cells and as a temporary integument.

By this method cicatricial deformities are lessened and pain diminished.

ENDOCARDITIS.—In the diagnosis of endocarditis the thermometer is of as much or more value than the stethoscope, as the temperature fluctuates within short periods of time so that the curve may be apparent on a few hour chart.

Endocarditis is usually consequent upon septic infection with some pathogenic organism, and not infrequently closely simulates typhoid fever. The temperature curve aids materially in the differential diagnosis when taken frequently. Lander Brunton has said: "If one finds a murmur at the heart, or even in a case where no murmur can be made out, if a temperature is present, which runs a course similar to quotidian ague, in a case where no malaria can be traced, and where there is to be found no indication of suppuration, it is very likely to be a case of endocarditis."

The late Sir Andrew Clark strongly recommended the use of benzoate of soda in this disease.

SECRETION NEUROSIS OF THE COLON.— Prof. Byron Robinson, of Chicago, writing on this subject in the last issue of *Mathews Quarterly*, sums up as follows:

1. The above disease of the colon should be termed secretion neurosis and enteritis. The first is of neurotic origin and course.

2. Both secretion neurosis and enteritis may co-exist.

3. Secretion neurosis of the colon occurs chiefly in neurotic females (80 per cent.).

4. It is closely associated with genital disease.

5. It is frequently preceded by constipation (a neurosis of the fecal reservoir or of the inferior mesenteric ganglion).

6. The continuation of the disease is partly due to an irritable, vicious habit of excessive epithelial activity.

7. The disease is characterized by colicky pains, with the evacuation of mucous masses.

8. It is not fatal, variable and erratic in attacks, with impossible prognosis as to time.

9. Macroscopically the evacuations appear as membranous, yellowish white masses of mucus.

10. Microscopically one sees hyalin bodies, cylindrical epithelium, cholesterin crystals, triple phosphates, round cells, various kinds of micro-organisms and pigment.

11. Chemically the evacuations consist of mucin and albuminous substance.

12. Secretion neurosis of the colon is comparable to the secretion neurosis of the endometrium (membranous dysmenorrhea) or bronchial croup.

13. Secretion neurosis of the colon appears to be limited chiefly to the part of the colon supplied by the inferior mesenteric ganglion, i. e., to the fecal reservoir (the left half of the transverse colon, the descending colon, the sigmoid and rectum).

14. It is a disease of the sympathetic secretory nerves, and is analogous to disease of the motor and sensory nerves of the viscera.

15. Its treatment consists in removing the neurosis, which lies in the front ground, and regulating the secretion, which lies in the background.

16. Three views exist as to the above disease, which certainly embrace more than one pathologic process, viz:

- (a) That the disease is enteritis (catarrh).
- (b) That it is simply excessive secretion of mucus (colica mucosa).
- (c) That it is a secretion neurosis of the colon (nervous).

LARYNGEAL INTUBATION AND THE ACT OF VOMITING.—Dr. Charles Lyman Green, of St. Paul, clinical professor of medicine and physical diagnosis in the University of Minnesota, entertains the opinion that abolition of the power to hold the breath puts an end for the time being to the possibility of "effective" vomiting. By that he means that, although efforts at vomiting may be made, nothing is ejected from the stomach. It was in 1895 that he broached his theory, and at the recent Montreal meeting of the British Medical Association (*British Medical Journal*, October 16, 1897) he presented a most interesting paper in which he offered anew his proposition to treat desperate cases of continued vomiting by means of intubation with a tube specially fashioned for that purpose, for he thinks that the ordinary O'Dwyer tube does not quite answer the purpose.

The all-important element in the mechanism of the act of vomiting, says Dr. Greene, is sudden forced inspiration followed by closure of the glottis, which insures a fixed state of the diaphragm and thus provides a rigid surface against which the stomach and its contents are forced by the abdominal muscles, so that the coincident action of these opposing forces presses out the contents of the stomach. A certain amount of regurgitation, he admits, might be accomplished in the case of an overfull stomach, especially in infants, by muscular contraction of the stomach alone or with the assistance of the action of the abdominal muscles, and it might be possible for the small, vigorous, and generally overfull stomach of the child to reject its

contents without the establishment of a fixed state of the diaphragm; but this, he adds, is improbable and, so far as his proposition is concerned, unimportant, inasmuch as the cases to which the proposed treatment would be applicable occur in adults, and vomiting in adults, to be really "effective," seems to require descent and fixation of the diaphragm such as can be effected only by the deep inspiration reinforced by the air column maintained by a closed glottis.

Dr. Greene has not had an opportunity to test the efficiency of intubation in actual cases of persistent vomiting, for since he conceived the idea he has had none that failed to yield to less heroic measures. He quotes, however, from Dr. M. Russell Wilcox, the demonstrator of physiology in the medical department of the university, an account of some experiments on dogs. Intubation of the animal's larynx was practised in one instance, and then injections of a tenth of a grain of apomorphine were given until the whole amount injected was a grain and a tenth. In addition, the dog's pharynx was tickled with a tuft of feathers. It went through with the movements of vomiting, but with each spasm the air could be distinctly heard rushing through the tube, and nothing came from the stomach. After twenty-five minutes the tube was withdrawn, and the dog vomited violently. Another dog, subjected to a similar experiment, but with only a tenth of a grain of apomorphine, made efforts to vomit, but did not succeed until he had dislodge the tube, when he vomited normally. Dr. Wilcox adds that he has never seen a dog accomplish the act of vomiting after tracheotomy had been performed.

Dr. Greene would like to obtain the experience of the profession as to the occurrence of vomiting after intubation or tracheotomy. He asks if patients intubated with the ordinary tube vomit freely and effectively. If they do, he says, that tube is ineffective for his purpose, and mere separation of the glottic bands is not enough to inhibit the act of vomiting. If, however, tracheotomized patients never vomit effectively and can not be made to do so when the tube in trachea is of proper calibre and free from obstruction, he considers his main proposition established, and says that this procedure or the use of a modified intubation tube would certainly be justified in cases of vomiting in which other treatment had failed and death by starvation and exhaustion was threatened.

A clinical observation that tends powerfully to uphold Dr. Greene's contention has been communicated to him by Dr. J. E. Schadle. Dr. Schadle was treating a case of chronic laryngeal stenosis by means of forcible dilatation. The patient was wearing a tracheotomy tube of the calibre of No. 21 of the French catheter scale. During the passage of the large œsophageal bougie employed the man made most violent efforts to vomit, but, whether the stomach was full or empty, he could not expel any part of its contents. [Editorial in *N. Y. Med. Journal*, Jan. 1st, 1898].

IMMUNITY.—W. Gilman Thompson, of New York, read a paper recently before the Practitioners Society of New York, published in

the *Medical Record*, Jan. 8th, 1898, on "Immunity, Recent Theories Viewed from a Clinical Standpoint," in which the following conclusions are reached:

1. The phagocytic action of the leucocytes in combating infection is of but little importance, and is mainly concerned in the removal of waste products rather than the devouring of living bacteria.

2. The leucocytes probably secrete substances which are both inimical to living bacteria and antagonistic to their toxins. The antagonism may be through digestion of the toxins and through counteracting the irritant effect of the toxins upon the general tissues and cells of the body.

3. The antitoxins of the serum, whether artificially injected or developed within the body, do not act by chemical neutralization of the toxins, but through stimulation to greater resistance of either the leucocytes or the tissues, or both.

4. The blood itself, neither through its leucocytes nor through its serum, is capable of producing all the phenomena of permanent immunity. To a limited extent only can it be relied upon for the prohibition of toxic symptoms.

5. It remains for the tissues to offer the final combat against the toxins, and to develop a more or less permanent resistance to them, which is transmitted to successive cell generations as more or less permanent immunity. To this effort they may be incited by either toxins or antitoxins, in addition to the exercise of the inherent property of living protoplasm to resent irritation of any sort.

6. It is probable that natural immunity does not differ in kind from acquired immunity, and that it is really acquired immunity which has been perpetuated for an unusually long period through succeeding generations.

FILARIA SANGUINIS STAINED.—Dr. Erwing, at a recent meeting of the New York Pathological Society, exhibited under the microscope a slide showing the *filaria sanguinis*. He said that he was indebted to the authorities of the New York Hospital, and especially to the house physician, for the specimen. An interesting feature in it was the very satisfactory staining. The smears were made in the ordinary way, fixed in alcohol and ether, and stained with methylene blue. The structure of the *filaria* was in this way very beautifully brought out. The granular structure of the body was thus made evident, and when examined dry, without any mounting-medium, the envelope of the *filaria* could be plainly seen. This disappeared when the specimen was mounted in a medium having a higher refractive index than air. He had searched very carefully, but in vain, for the cilia described by some writers as attached to the sheath of the *filaria*. The method of preparation just described was a good way of preserving such a specimen permanently.

DIAGNOSTIC IMPORTANCE OF EXACT PULSE EXAMINATIONS. — W. Janowski (*Volkmann's klinische Vorträge*, October, 1897, pp. 192, 193) deprecates the modern tendency to regard lightly the informa-

tion to be obtained from the pulse, and attaches much importance to the results obtained by an intelligent use of the sphygmograph. He recognizes eighteen forms of arterial pulse, which are to be grouped as follows: (A) Pulse whose characteristics are recognizable from the inspection of tracings of a single beat. 1, Pulsus durus; 2, pulsus mollis; 3, pulsus celer; 4, pulsus tardus; 5, pulsus magnus; 6, pulsus parvus. (B) Those forms which require for their recognition tracings of a succession of beats. 7, Pulsus frequens; 8, pulsus rarus; 9, pulsus irregularis; 10, pulsus embryocardia (a rapid, short systole, followed by an equally rapid and short diastole, the pause being altogether lacking); 11, double pulse, in which each beat is closely followed by another, a pause then intervening before the next beat (triple and quadruple forms are also found); 12, unequal pulse, characterized by unequal heights of the wave summits; 13, alternating pulse, in which small waves succeed larger ones in a definitely proportionate manner; 14, the so-called pulsus paradoxus, in which the character of the single waves is influenced by respiration; 15, alternating form of double pulse, in which the first of the two beats is larger than the second; 16, hemisystolia, two heart beats giving rise to but a single pulse wave; 17, condition of total arrhythmia, presenting differences in size and rhythm not governed by any rule perceptible; 18, pulsus differens, a pulse different in the two halves of the body. Each of the above is exhaustively but practically treated, and the value of the discussion is furthered by numerous reproductions of pulse tracing taken at the bedside.—*Med. Record.*

SURGERY.

COMPLETE REMOVAL OF THE STOMACH WITH RECOVERY.—The greatest triumph of the year 1897, from a surgical standpoint, is undoubtedly the operation for complete removal of the stomach by Carl Schlatter, a full report of which appears in the *Medical Record*, December 25th, 1897, by Dr. E. C. Wendt. The case is unique, not alone because of the magnitude of the operation, and one might say, toughness of the patient, but because it proves what has been suspected by the far-sighted, that we pay entirely too much attention to the stomach. Dr. Goodhart once horrified an audience at the Royal College of Physicians, London, by characterizing the stomach as "that food bag," and now we suspect that the worthies, who joined hands in condemning such "slang," will rapidly fall in line, utterly oblivious of their attacks on Goodhart.

This woman, upon whom Dr. Carl Schlatter, of Zurich, Switzerland, operated, is still living, in apparently good health and strength, much to the dismay of dogmatic physiologists. At any rate the ice has now been broken, and in all probability the near future will clear up many obscure points in the physiology (and pathology) of digestion. We will also probably have a fashionable rage for stomach operations for purposes of diagnosis as well as treatment.

We quote the conclusions arrived at by Dr. E. C. Wendt, who reported the case for the Record:

1. The human stomach is not a vital organ.
2. The digestive capacity of the human stomach has been considerably overrated.
3. The fluids and solids constituting an ordinary mixed diet are capable of complete digestion and assimilation without the aid of the human stomach.
4. A gain in the weight of the body may take place in spite of the total absence of gastric activity.
5. Typical vomiting may occur without a stomach.
6. The general health of a person need not immediately deteriorate on account of removal of the stomach.
6. The most important office of the human stomach is to act as a reservoir for the reception, preliminary preparation, and propulsion of food and fluids. It also fulfils a useful purpose in regulating the temperature of swallowed solids and liquids.
8. The chemical functions of the human stomach may be completely and satisfactorily performed by the other divisions of the alimentary canal.
9. Gastric juice is hostile to the development of many micro-organisms.
10. The free acid of normal gastric secretions has no power to arrest putrefactive changes in the intestinal tract. Its antiseptic and bactericide potency has been overestimated.

We hope that, with its characteristic enterprise, the *Medical Record* will publish Dr. Schlatter's further investigations on his patient, and will see to it that Dr. Wendt does not again curtail it, for fear of its length. THE EDITORS.

PALLIATIVE AND OPERATIVE TREATMENT OF FISTULA IN ANO.—John B. Blake, Boston, (*Boston Medical and Surgical Journal*, September 2, 1897).

Dr. Blake states that next to hemorrhoids, fistula in ano is the commonest disease of the rectum. In a series of cases reported there is one case in a child of one year, the oldest operated on being seventy-five years old.

An inflammatory process is given as the most frequent cause, a proctitis, peri-proctitis, or an ischio-rectal abscess. Other causes are fissure and ulcerated hemorrhoids, tubercular processes of rectum or ischio-rectal fossa, trauma, foreign bodies, necrosis of sacrum or coccyx, worms, and predisposing causes frequently, as constipation and diarrhea and filth.

He names complete blind internal and blind external as varieties, also the horseshoe.

The diagnosis of a fistula is easily made, but its extent can not be ascertained until time of operation, and for this reason a prognosis can not be given before that time.

A very comprehensive resumé of the anatomy of the parts is given, when the author takes up the treatment, which as expressed in the title he divides into operative and non-operative.

The non-operative treatment is given as (1) simple cleanliness, (2) dilatation of opening and packing with gauze, (3) application of caustics, (4) introduction of elastic ligature. Of these the preference is given the latter.

The operative treatment is named as follows: (1) Free incision with granulation from the depth of the wound to the surface; (2) removal of the fistulous tract by dissection and uniting the wound by sutures to secure healing by first intention.

Preliminary preparation for the operation is an essential; administration of cathartics, preferably saline, the day preceding the operation, followed by an enema not more than two hours before the administration of the anesthetic. Previous diet for a day or so should consist of meat broths only. Either dorsal lithotomy position or on the side on which the main opening of the fistula is situated may be used. Mechanical cleanliness, shaving, and antiseptic methods must prevail.

Full dilatation of the sphincter is an important step in the operation, but more so is the careful probing to ascertain the presence of branches or blind pockets. Great care must be exercised in finding the internal opening, not forcing the probe through. Granulations and pockets must be thoroughly curetted. The external sphincter may be freely incised without hesitation, but the internal should be incised most carefully; leave part of its fibers intact, if possible. Never cut anteriorly in a woman, always at right angles, and never in but one place.

Hemorrhage is controlled by packing, a T-bandage applied, after inserting a suppository containing one-fourth grain of morphia, in all cases. Dressing changed two days after operation and daily thereafter, the bowels moving on the fourth or fifth day, assisted by a warm sweet oil enema to soften the feces, followed by a soapsuds enema. The granulating process may last from three weeks to three months.

The type of fistulæ in which the operation by means of excision is applicable are the non-inflammatory, of moderate extent, with few branches, also blind internal fistulæ of all varieties.

The fibrous walls must be removed by dissection or curette, the walls being approximated by deep sutures, silk preferably. They should be inserted at half-inch intervals. Pain is apt to be greater after excision.

Dr. Blake states that the necessity for such a discussion as waxes now in journals in regard to operating for fistula in tubercular subjects is not apparent. If in the judgment of the surgeon the condition of the patient is good enough to withstand operation, and if the benefit is greater than the discomfort attendant upon the operation, then it must be operated on. Each case is a law unto itself.

He believes that whichever method is used, the after-treatment is at least as important as the operation itself.

PRIMARY TUBERCULOSIS OF THE RECTUM.—In Mathew's Quarterly Journal of Rectal and Gas. Int. Diseases, January, 1898, we find a very interesting article by Leon Straus, M. D., of St. Louis, on the above subject, and quote the conclusions which he reaches:

1. That primary tuberculosis of the rectum is not so infrequent as some of the leading authorities have taught.
2. That it is a surgical disease as much so as is appendicitis.
3. That it is not and can not be diagnosed by the clinical symptoms as given by the various writers on diseases of the rectum.
4. That the only scientific and correct way of making a diagnosis is by the use of the microscope.
5. That by thorough curettement or excision or both together with cautery it is not only cured but remains cured much more often than is dreamed of; certainly more often than the teaching of the authorities would have us to believe.
6. That some of the apparently most hopeless cases are cured by repeated operations.
7. That all suspicious cases should be submitted for microscopical examination, for the reason it is the only scientific method of reaching a diagnosis.
4. That local treatment is not equal to curing these cases; permanent results are to be had by a radical destruction of diseased tissue or the habitat of tubercle bacilli.
9. That these cases are and have been cured, and that sufficient time has elapsed for us to conclude that they will remain cured.
10. That early and repeated operations if need be are imperative, if these cases are to be permanently cured.

FORMALDEHYDE IN THE TREATMENT OF BURNS.—Good authority states that formaldehyde gives excellent results in the treatment of burns. Compresses soaked in a ten per cent. solution are applied. It is said that in twenty minutes all the pain ceases, and that continued renewals of the application cause all traces of the burn to disappear, so that not the slightest redness of the skin is left. It is to be assumed that the author of these statements had in mind burns of only moderate severity.—*Am. Jour. of Surg. and Gyn.*

Formaldehyde in proper strength, according to our observations, gives excellent results in the treatment of burns in a one-half to one per cent. solution. We take it for granted that the article means the 40 % formalin or formaldehyde gas in water. A ten per cent. solution of this would prove entirely too strong and irritating even for the normal skin, not to mention a burned surface. Formaldehyde acts as a wonderful local anæsthetic to wounds and burns as well as the best and most successful antiseptic agent known to us, but it must not be used in too strong solution, for then it produces great pain, hardening of the tissues and inflammation, which might lead to

aseptic sloughing. We believe that we are the first to claim this local anæsthetic action for formaldehyde, following its use as an antiseptic in wound treatment. So successful has it been as an antiseptic in our hands that we some time since have given up bichloride. EDITORS.

SUCCESS OF DITTEL'S ELASTIC LIGATURE FOR HEMORRHOIDAL NODULES.—"Recovery followed in every one of the 269 cases that have been treated in Dittel's service; twelve days was the average time. No anesthesia is used except Schleich's local infiltration. The curved polypus forceps are guided by a finger of the left hand inserted into the rectum. By turning the forceps ninety degrees the nodule is brought up out of the anus and with the surrounding mucosa is then ligated with an elastic cord stretched to its utmost. The nodules lose their vitality in eight to ten days and drop off, leaving a clean granulating surface. The external anal skin must not be included in the ligature, as this is very painful."—*Journal of the American Medical Association*, Nov. 6, 1897.

CARBOLIC ACID GANGRENE.—Czerny (Münch. Med. Woch., April 20, 1897) observed that whereas some twenty-five years ago there were numerous records of carbolic acid intoxication, yet even in that period the occurrence of gangrene was rarely reported. After referring to some recorded cases, Czerny observes that hardly a semester passes in his clinic without a case of carbolic acid gangrene presenting itself, and he warns his students against the use of watery solutions of this agent. He gives details of three cases recently admitted to his clinic. In all the cases the carbolic acid solution was applied to a wound of the finger. Gangrene supervened, and amputation became necessary. This gangrene is of the dry kind. The anæsthetic action of carbolic acid induces the patient to leave the dressing on. The part first becomes grayish-white and eventually black, without any sensation of pain. Circulatory disturbances caused by firm bandaging, inflammation, or a severe injury predispose to it. The above named patients were in robust health, and the injuries were not such as to induce gangrene by themselves. In two of the cases a three-per-cent. solution of carbolic acid was applied, but it was kept on for several days. The duration of the application is more important than the concentration. The author concludes that since with any solution of carbolic acid gangrene may under certain circumstances develop, this agent should be altogether avoided as a dressing, and other antiseptic solution used.—*British Medical Journal*, May 22, 1897. *Therapeutic Gazette*.

FISSURE OF THE ANUS.—"Fissure of the anus usually gives rise to intense pain, which often lasts many hours after stool. This may be greatly alleviated by inserting a very narrow slip of moist gauze with a flat probe, so that the gauze lies against the raw surface of the fissure. It gives the same relief which is experienced when a light packing is placed between the skin and the nail in cases of so-called

ingrowing toe-nail, and for the same reasons, namely, it prevents inflamed tissues from touching each other and drains away irritating wound secretion. Weakly iodoformized gauze is best because of the local anesthetic action of the drug, but one must be sure that no idiosyncrasy exists forbidding its use.—*International Journal of Surgery.*

OBSTETRICS AND GYNÆCOLOGY.

FACE PRESENTATIONS.—P. Dreyer (*Norsk. Mag. for Laegevidensk.*) emphasizes the difficulties met with in malrotated face cases. When the chin is to the front no other treatment than that employed in vertex cases will be needed; but when the chin is posterior one should leave the case to nature till, after complete or nearly complete dilatation of the os externum and rupture of the membranes, one recognizes that in spite of good pains the chin does not in an hour or two pass into the pelvic cavity. If, then, there are signs of danger in the lower uterine segment, and if the fetal heart beats are diminishing in number and becoming irregular, the time has come for changing the presentation by "*redressment*." This treatment the author prefers to version, even when immediate delivery is necessary, and he follows it at once by the use of forceps. He thinks there is less danger in applying forceps to the occiput in its high position than in trying version when the lower uterine segment is much distended.—*British Medical Journal.*

THE EARLY DIAGNOSIS OF ECTOPIC PREGNANCY.—Eden, in *Am. Jour. of Med. Sciences*, Dec., '97, considers ectopic pregnancy a physiologic accident liable to befall any healthy woman during the fruitful period of life. There is no evidence to prove that diseased conditions of either uterus or tubes play any part in its occurrence. The menstrual function in this condition is for a time in abeyance, and then is succeeded by irregular or persistent hemorrhage. It is rare for more than two periods to be missed; after this comes hemorrhage, variable in amount, generally accompanied by considerable pain, and sometimes by the discharge of a fleshy mass from the uterus—the decidua cast. As a rule, abdominal pain precedes the hemorrhage by a week or two, or even longer, and persists or grows more intense after the occurrence of the supposed abortion. In the great majority of cases rupture occurs during the third month (eight to twelve weeks); it is very exceptional to find an unruptured tubal pregnancy which has advanced beyond the third month. The rupture is due not to the growth of the ovum, but to the distention of the tube by hemorrhage. The fundus of the uterus is enlarged and softened, but feels quite different from that of an early gravid womb. With regard to physical signs, a pyosalpinx is usually accompanied by a much greater degree of surrounding inflammatory changes than a gestation-sac; it, therefore, tends to form a fixed swelling, harder in consistence, and much less definite in outline. The uterus, although enlarged, is usually hard, and its mobility greatly impaired, and the opposite appendages may be also obviously diseased.

Reynolds in the *Boston Medical and Surgical Journal*, Dec. 23, '97, records an exceedingly interesting case of oöphorectomy for dermoid cyst performed upon a woman while in the first stage of labor. The contents had partially escaped into the peritoneal cavity, which was filled with a thick, creamy, bloody fluid of grumous odor. The fetus having perished, the head was perforated and a male child, weighing 8½ pounds after removal of the brain, was extracted *per vaginam*. The patient being in collapse was treated with large quantities of warm salt-solution which was introduced into the peritoneal cavity through the incision. An almost uninterrupted recovery followed. This is, according to Reynolds, the first reported case of oöphorectomy during labor. He claims that in every case of labor obstructed by fibroid or other tumors, full and repeated trials of taxis, the patient being in the knee-chest posture, should precede the abdominal operation. When there is a fair probability that the patient has already been infected with sepsis *per vaginam*, it would be better in most cases to lift the uterus forward without opening it, remove the tumor and then let the child take its chances with an instrumental intrapelvic delivery rather than risk putting the mother's peritoneum into communication with an infected uterine mucosa.

HYSTERECTOMY BY AN IMPROVED METHOD FOR INTRALIGAMENTOUS CYSTS.—At a recent meeting of the Southern Surgical and Gynecological Society Dr. Rufus B. Hall, of Cincinnati, read a paper in which he said he believed the mortality from operations for intraligamentous cysts was much higher than the statistics would lead one to believe. Many of the deaths were due to hæmorrhage, either on the table or within a few hours after the patients were put to bed. He thought the operation he proposed would save many lives, as it was practically a bloodless one. It was applicable to cases in which the adhesions were very firm and the cyst could not easily be stripped from the pelvic floor. He described the operation as follows: "First tap the cyst and empty it. Ligate the ovarian artery on the tumor side at the pelvic border. Ligate the ovarian artery on the opposite side, outside the healthy ovary. Divide the broad ligament. Divide the peritonæum above the top of the bladder and push the bladder down. Ligate the uterine artery on the healthy side. Cut across the cervix and clamp or ligate the uterine artery on the tumor side. The blood supply is then cut off and the patient has not lost a drachm of blood. The capsule of the tumor can now be divided above the top of the bladder and at a suitable point behind, and the tumor enucleated from below upward with very much greater ease than from above downward and with corresponding safety to the ureter, the rectum and the iliac vessels. Close the peritonæum over the pelvic floor with a running suture of catgut." This method, he says, brings every part of the field of operation into view. The ureter can be seen, recognized, and pushed aside. The adhesions are separated along the line of cleavage instead of against it, as in the old method.—*N. Y. Medical Journal*.

PEDIATRICS.

SPINAL MENINGITIS.—Gust. Petersen (*Deutsche medic. Wochenscher.*, 1896, *xxii*, 579). In making a positive diagnosis the following conditions were kept in view:

1. The clinical course during the duration of the epidemic resembled the well-known characteristic disease-picture of cerebro-spinal meningitis. Nearly all of the cases were treated in the hospitals of Berlin, and in this way the observation and hence the diagnosis could be very exact.

2. The pathologico-anatomical findings confirmed the clinical diagnosis. A post-mortem was made in twelve out of the fourteen cases that died.

3. The bacteriological examination of the spinal-fluid obtained by means of Quincke's puncture, revealed the presence of Jaeger-Weichselbaums meningococcus intracellularis in every case. In three cases the puncture was not made, it is true, but the author believes that the opportunity for infection and the epidemiological connection among these cases had been such that the absence of a bacteriological examination seemed thereby counterbalanced.

He then reports twenty-two cases, from which the author comes to the following conclusions: "These were undoubtedly cases of epidemic cerebro-spinal meningitis. Infection was caused by personal contact, by carriers and by entering rooms which were infected. The disease showed a preference for the age of childhood, as the adult carriers of the infection remained well, while the infected children became ill and usually died. It also favored the poorer classes of inhabitants, and seemingly also persons in whom some injury to the head or some nervous disease would lead to the belief that an abnormal condition of the meninges, or of the cerebro-spinal fluid was present. The period of incubation was three to four days. In most cases some diseases of the upper respiratory tract preceded the nervous symptoms. The mortality seems excessively high for the number of cases reported; we may, however, assume that some of these, not having a lethal ending, ran their course with the symptoms of other diseases. The causes of the disease seem to exist and retain their contagious qualities outside of the human body for a long time.—*Pediatrics*.

ETHER NARCOSIS IN INFANCY.—Stoos (*Memorabilien*, 1897, *xl*, 446). Demme has pointed out that ether narcosis is not safe during the first years of life, as it is apt to cause irritation of the mucous membranes, bronchitis, broncho-pneumonia and vomiting; furthermore, the stage of excitation is said to last longer than in chloroform narcosis, and therefore very excitable children are hard to etherize. We often meet with shaking spasms; the awakening is not as quiet as after chloroform, and is frequently followed by vomiting, anorexia, and an irritable condition for 36 to 48 hours. For these reasons chloroform has been preferred as an anesthetic for children until recently, when a change of opinion has taken place. The surgeon at

the present time concedes that ether is safer than chloroform. Stoos lost faith in the safety of chloroform narcosis in children since he saw the occurrence of chloroform collapse after its use in children. There are cases of death even reported from this cause. Ether does not irritate the mucous membrane of the trachea and the bronchi in small children more than chloroform. Children suffering even with a slight cough may be etherized without harm. A severe catarrh or disease of the lungs is of course a contraindication to its use. It has been claimed that profuse salivation occurred in children, and therefore the period of teething, in which salivation is increased, was not a suitable time for administering ether. Stoos has not had this experience. Intense salivation is usually caused by an existing coryza. The children should be placed horizontally, with slightly raised head, and turned to one side to facilitate the flowing off of the saliva. The assertion that the beginning of etherization is more difficult, slower and more unpleasant, the stage of excitation greater and longer than in chloroform narcosis, is without weight, if the ether is properly administered; within two to five minutes relaxation of the muscles is obtained. Nausea and vomiting do not occur more frequently than after chloroform narcosis. As a preparation to the administration of ether the stomach should be kept empty and a clysma may be given. Ether narcosis should be preferred to chloroform on account of its lesser danger. Rehn mentions that in Frankfort City Hospital ether is now preferred to chloroform in children.—*Pediatrics*.

THREAD WORMS.—In those cases of thread worms, in which a macroscopic and microscopic examinations of the fecal matter is impossible, Müller de la Fuente, in the *Münch Med. Wochenschr.*, mentions the following signs in diagnostic auxiliaries: According to his observations, the sudden occurrence of severe abdominal pains which can be exactly located are characteristic. At the seat of pain there is present great tenderness on pressure. The absence of continued fever militates against the inflammatory character of this circumscribed pain, as we only meet with a slight rise of temperature towards evening when thread worms are present. Convulsions can be traced directly to these worms and disappear immediately after the latter are expelled. Their connection with chorea on the other hand is not a direct one. The author furthermore calls attention to the frequent epidemic appearance of this trouble, even where filth may be excluded. He also refers to the oftentime vicious character of the disease, as well as to the great frequency with which contraction in the field of vision occurs in cases suffering with thread worms. This phenomenon also disappears after the worms have been removed.—*Therapeutic Wochenschr.*, 1897, iv, 869.—*Pediatrics*.

CASE OF A CONGENITAL TUMOR IN THE SACRAL REGION OF AN INFANT.—B. Krutowski (*Dietskaja Medicina*, 1897, p. 205). Boy two

days old was born with the tumor attached, with a short peduncle to the left side of and a little above the anal opening. The tumor consisted of two parts: the upper the size of an adult male fist, hard and round, and the lower soft, fluctuating, divided from the first by a neck-like band. Both parts are covered with skin, and the upper part is covered with hair.

The dermoid tumor was cut off; it weighed three and one-half pounds, while the child, without the tumor, wrapped in a sheet, weighed six pounds.

The tumor consisted of small cysts; in the peduncle two small bones, probably from the os coccyx, were found.—*Pediatrics*

THE TREATMENT OF OPHTHALMIA NEONATORUM—Dr. Eversbusch (Centralbl. für Kinderheilkunde, 1897, ii, 1), as long as the cornea is intact, does not use either nitrate of silver, nor iodoform, nor corrosive sublimate, if both eyes are affected. If one eye alone is infected, the other is daily treated by the installation of one drop of a two per cent. solution of nitrate of silver, as recommended by Credé. A single drop should be applied between the slightly opened lids by means of a glass rod. He is able to corroborate Fränkel that even the daily repetition of this prophylactic measure for weeks has never produced permanent irritation in the normal eye.

The healthy eye is still further protected by the application of some borated vaseline to the base of the nasal ridge, and by always cleansing the healthy or less affected eye first. The cleansing of the eyes, which should be practised every hour or two, night and day, allowing the child some sleep, however, according to the degree of inflammation and the amount of pus secreted, is the most important factor in the treatment of ophthalmia neonatorum. We may also make use, in addition to the careful removal of the pus, of Lamhofer's method of washing out the conjunctival sac with a lukewarm physiological solution of common salt, or by a three per cent. solution of boric acid, using sterilized absorbent cotton. The washing should not be done with a syringe, but with glass tubes made especially for this purpose.

He also makes a daily instillation of one drop of a one-quarter per cent. solution of physostigmin—if possible in the forenoon. The secretion of pus is frequently diminished in a marked manner by this measure.

No baths are given the child while suppuration is at its height, as it was found to increase the discharge, probably through chilling the patient.

The general nutrition of the child is also of great importance. Neglect in cleansing the oral cavity, early weaning of the child or depriving it of sterilized milk, will frequently make a seemingly favorable progressing case worse. He observed repeatedly this in the new-born who had to be dismissed from hospital to dispensary treatment on account of the clamor of relatives. In this way we may

also explain why children born out of wedlock, who contract this disease with great frequency, furnish the greatest number of bad results. Intercurrent profuse diarrhea should be carefully watched for, as it may be accountable for a serious increase of the blenorrheal symptoms, as well as occasionally of a sudden remission.

The doctor himself should, of course, carefully examine the eyes at least once every day. He should convince himself, especially in the beginning of the treatment, that his directions are strictly followed. The solution of nitrate of silver, which ought to be prescribed by itself in each case and properly labeled, must always be kept perfectly clear and in a black or brown vial.

When some loss of the substance of the cornea has occurred the treatment with nitrate of silver is not only permissible, but even imperative, and the form of application should be with a hair-pencil (not dropping it into the eye). It is well to commence with a one per cent. solution, and gradually to employ a one and a half to two or three per cent. solution. This cauterization should be repeated daily. If a profuse purulent secretion continues to form in spite of the application for one to two hours afterward of ice-water compresses, the process may be repeated twice in twenty-four hours. This treatment should be continued until the purulent secretion has disappeared, gradually diminishing the strength of the solution to one or one-half per cent., as the discharge becomes less and the swelling of the conjunctival mucous membrane disappears. Ulcer of the cornea, whether situated centrally or at the periphery, may be favorably influenced after repeatedly pencilling with nitrate of silver two or three times at equal intervals during the afternoon, by the instillation of a solution of physostigmin alternating with one of scopolamin.

	R	Physostigmin salicyl	0.05
		Sol. sublimat. (1.0:5000.0)	10.0
M	Sig.	Poison—for doctors' use.	
	R	Scopolamin hydrobromic	0.01
		Sol. sublimat. (1.0:5000.0)	10.0
M	Sig.	Poison—for doctors' use.	

The installation of physostigmin, though continued for a number of weeks, does not occasion any pathological irritation even in the eye of the new-born. Even when physostigmin is copiously applied, an equal and even dilatation of the pupil may always be obtained by the application of scopolamin. It is of interest as a prognostic indication that a change for the better is always preceded by the appearance of pupillary contraction. The reparative process in ulceration of the cornea is also markedly promoted by applying over the lids cloths dampened with dilute chlorine water. These may be used lukewarm at first, and as the purulent secretion diminishes they may gradually be applied warmer.—*Pediatrics*.

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ORIGINAL COMMUNICATIONS.

THE SIGNIFICANCE OF THE NEW RAYS.

BY LAURENCE TURNBULL, M. D., PH. G.

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Another example of these rapid developments of electricity are the recent remarkable experiments of Prof Roentgen, and its application in producing photographs of anatomical structures within the living body.

By its aid there has been demonstrated the position of deposits and injuries of the bones and joints of patients; bullets and other foreign bodies impacted in the flesh and bones have been located in this way, also aneurisms of large vessels with deposits in their structure, and we have hopes that it may aid us in obscure diseases of the ear and brain by intensifying the rays so that they would pass through the temporal and other bone structures, and shed new light to aid our diagnosis. The significance of these new rays is well expressed by Mr. Edison: "You play on your piano and find that certain notes will make the windows vibrate. A certain note on your violin, perhaps, will shatter a wine glass. This quality of being naturally affected by certain vibrations, is general in physics. Blue glass is tuned to blue vibrations, and so on.

"We are most of us familiar with the middle scale of vibrations of the ether, running from red to violet. These, known as Light, do not pierce solid substances except in rare cases. Below red are Heat vibrations. They pierce solid substances but have not the faculty of photography. Still lower, after a gap, are the vibrations of Sound. They again, while piercing solid matter, have no photographic power. In the new ray discovered by Roentgen, we have come upon an unknown set of vibrations above the violet, which traverse almost all known substances, and which seem to have in addition all the qualities of ordinary light.

"The new ray, however, is not a light at all. It is an emanation in the ether: probably only that, i. e., an unknown brother of light,

and heat and sound. But possibly it is a new force like gravitation. Theosophists and spiritualists and visionaries will claim the discovery as their own, but it has nothing in common with their theories.

"My sole interest and object in the matter has been, as a practical inventor, to perfect as far as possible, and therefore cheapen the cost of, the apparatus necessary for producing this new manifestation. I am not engaged in pure science.

"The instruments used in my experiments have been—

An incandescent bulb.

A negative.

A pair of miniature arcs arranged in the vacuum within the bulb.

An ordinary Rumkopf inductive coil."

If the bulb be covered with a cloth or be put in a black box, the vibration still comes through and does its work. The most valuable uses to which the new vibration has been put is in medical diagnosis and surgery. Great improvements have been made by more perfect apparatus so we can obtain a spark 15 inches in length and the bulb beautifully illuminated.

THE X RAYS.—Being desirous of experimenting with this interesting and important means of diagnosis, we obtained the use of Dr. Massey's large seven cylinder static electric machine, and with a Crooke's tube we made several pictures of the bones of the hand (Fig. 1). The Fluoroscope (Fig. 2) we found of great convenience; it was designed by Edison, and consists of a flaring box curved at the end to fit over the forehead and eyes like a stereoscope. The end of the box is closed by a pasteboard cover, and on the inside of which is spread a layer of tungstate of calcium, which Mr. Edison found to possess six times the fluorescing power under the influence of the X-rays, as compared with barium platino-cyanide.

By placing the object to be observed, such as the hand, between the vacuum tube and the fluorescent screen, the shadow is formed on the latter and can be observed at leisure. These fluoroscopes are tasteful in design; they are provided with flexible and close fitting eye-pieces which make it possible to use them in a lighted room, and are as light in weight as is consistent with the strength of frame necessary to protect the screen. The screen is the result of careful experimenting with crystals of different sizes and applied in varying quantities. The method of supporting the crystals has received special attention; after thorough tests of papers of different kinds, card boards, woven cloths, aluminum foil, etc., as mounts for the crystals that has been adopted which proved best for the purpose. An interesting experiment with the fluoroscope to which we would call attention, is performed by holding the instrument very near the source of the X-rays for a few minutes; it will be found that the screen retains the shadow picture cast upon it for several seconds after the existing cause is removed.

SELECTION OF APPARATUS.—The size of induction coil to be chosen

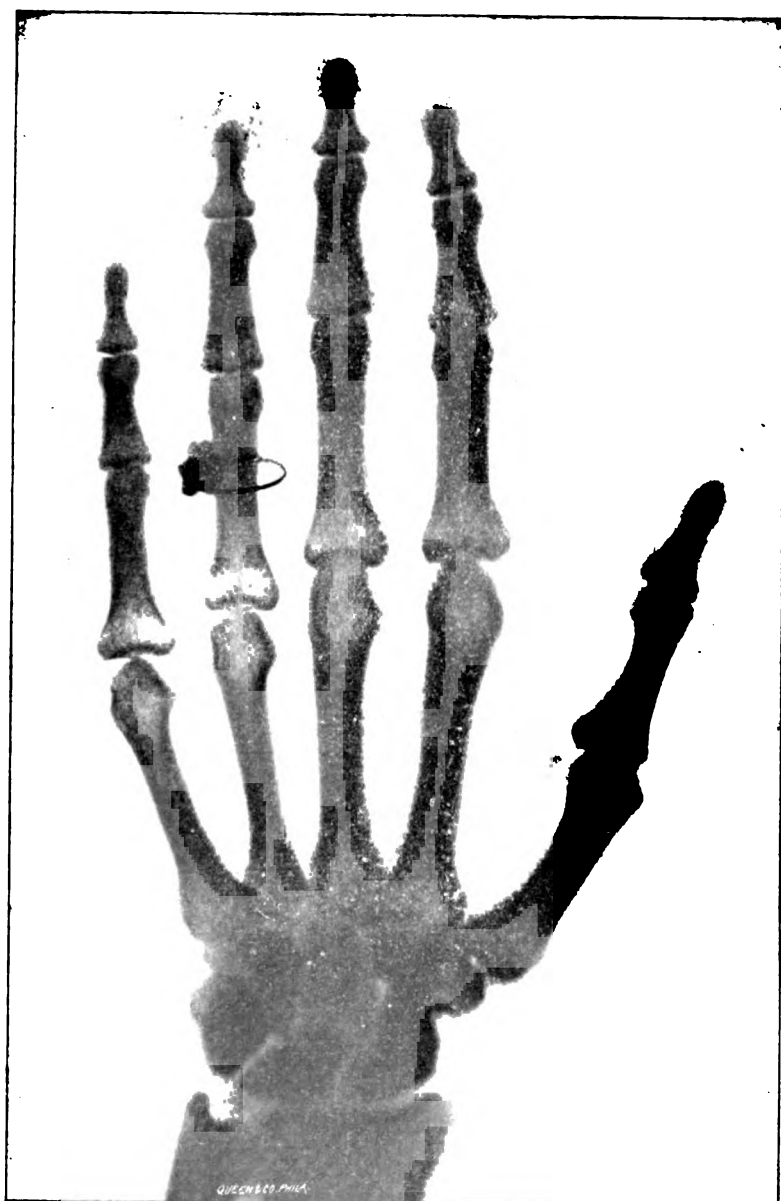


FIG. 1.

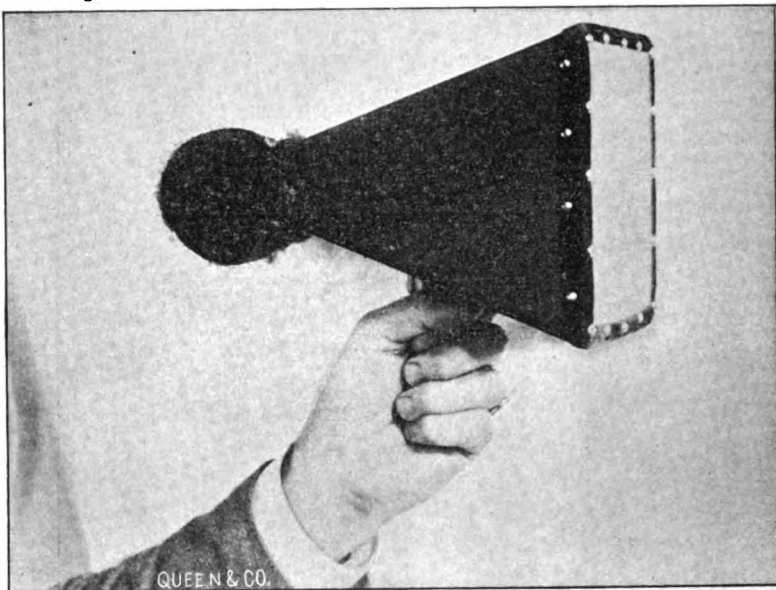


FIG. 2.

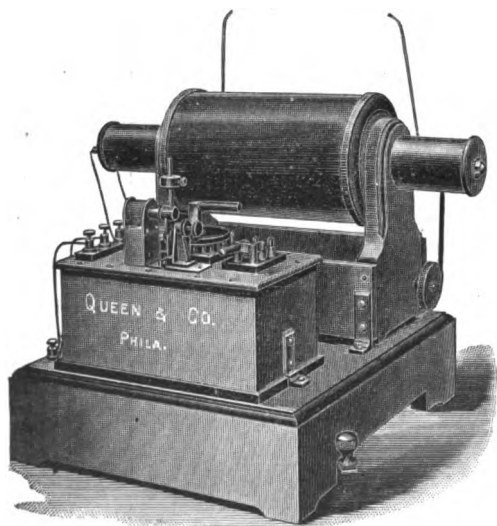


FIG. 3.

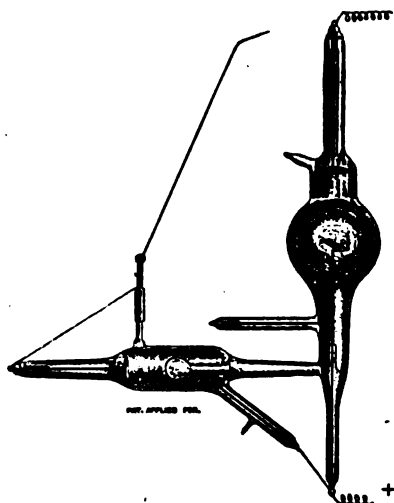


FIG. 4.

will depend on the kind of work to be done. If it is desired to use the apparatus simply for demonstration purposes, a coil giving a 3 or 4-inch spark will be ample. With a coil of this size radiographs of the hand, arm, foot, etc., may easily be taken. If radiographs of the trunk are to be made an 8, 10, or even 15-inch coil will not be found too large. On the size of the induction coil will depend the number of cells of battery to be used.

SETTING UP THE APPARATUS.—Clamp the tube by means of the side tube on the bulb on to the stand, which is so arranged that it can hold the tube in either a vertical or horizontal position. Connect the concave aluminum electrode to the negative pole of the induction coil and the platinum electrode to the positive. It is extremely important that the connections should be always made in this way. If the platinum sheet is made the cathode, finely divided platinum is rapidly deposited on the walls of the tube, and enough more of the gas remaining is absorbed to make the vacuum so high that the tube cannot be operated.

PLATE HOLDERS AND DEVELOPERS.—For most work a plate placed in the ordinary form of plate holder will be found entirely satisfactory. If the object to be radiographed is a small one the picture will be sharper and less distorted, if it can be laid directly on the plate. It has been found most convenient to use an empty plate box, laying the object, if small, directly on the plate in bottom of box, or if too large to hold the plate up against the top of box by means of corks, and to lay the object on top of box.

Queen & Co., of Philadelphia, have recently devised some improved apparatus for X-ray work: the induction coil (Fig. 3). The illustration shows a coil giving a heavy 12-inch spark, and adapted to run either with storage batteries or on the 110 volt direct current lighting circuit. The length of spark can be controlled by a rheostat in series with the primary coil from two to twelve inches. The spark points are adjusted by the hard rubber disk shown at the right of the coil, which is so well insulated that the operator is in no danger of receiving a shock, even when the points are opened out to the full extent. In the choice of insulating materials, and in assembling the coils, the greatest possible care is used. Methods are employed which remove absolutely all air from the insulating material in the secondary. By these means it is not only impossible for the coil to break down, but small leaks which diminish the efficiency of the coil and may develop in time into serious breaks, are avoided. The coil is finished throughout in polished mahogany and hard rubber. Experience has shown this to be not only the most ornamental but also the most durable form of construction.

Crooke's Tube (Fig. 4). The Queen self-registering X-ray tube has made it possible to utilize the larger sizes of induction coils and accurately control the degree of exhaustion.

A reference to the illustration will make the operation of the tube clear. A small bulb containing a chemical which gives off vapor

when heated, and re-absorbs it when it cools, is directly connected to the main tube, and surrounded by an auxiliary tube, which is exhausted to a low Crooke's vacuum. In the auxiliary tube the cathode is opposite to the above mentioned bulb, so that any discharge through it will heat this bulb. This cathode is connected to an adjustable spark point, which may be placed at any desired distance from the cathode of the main tube. The anode of the small tube is directly connected to the anode of the main tube. The coil is connected as usual to the main tube. When it is put in operation, the vacuum of the main tube being high, the resistance is also high, and the current takes the path of least resistance by the spark point and the auxiliary tube, thereby heating the chemical in the small bulb. This will continue for a few seconds until a sufficient amount of vapor has been driven into the main tube to permit the current to go through it. After this only an occasional spark will jump across the gap to maintain the tube at a constant vacuum.

The vacuum may be set high or low by placing the spark point at a considerable distance from, or close to the cathode terminal of the main tube. This adjustability of the vacuum is of the utmost importance, as the penetrating power and photographic effect of the X-rays depend on the degree of exhaustion. When the vacuum is high the rays have much greater penetrating power but less photographic effect than they do when it is lower. A tube with high vacuum does not show much contrast between bones and muscles as it penetrates both, but it does show strong contrast between metallic bodies and bones or muscle, hence a high vacuum should be used to locate a deep-seated metallic body or one in dense muscular tissue. On the other hand, a radiograph of the hand can be made in much shorter time, with sharp detail and strong contrast between bone and flesh, if a low vacuum is used. In this tube the vacuum may be made so high that it is impossible to force any current through it, or so low that the current will go through the tube rather than jump over a parallel spark gap of one-half inch, a range vacuum that includes all possible X-ray work.

As the main bulb is exhausted to very high degree in the first place, it can take a large amount of current and run with the platinum hot without lowering the vacuum. The amount of current which the tube may be exhausted to take is apparently only limited by the melting point of the platinum. This is a very important point, as the length of exposure necessary to make a radiograph is proportional to the current going through the tube. This tube places possessors of large induction coils in position to get the full advantage of them. The gradual increase in vacuum which is noticed in all X-ray tubes is the cause, barring accident and misuse, of their limited life. With this tube, this increase in vacuum only necessitates a slight increase in the amount of current going through the auxiliary tube to bring the vacuum down to a usable point.

As a result of this improved apparatus it is now possible to do

X ray work with an ease and certainty heretofore impossible, and, what is even more important, the time of exposure has been very much reduced. A good radiograph of the hand may be made in three or four seconds, while as many minutes suffice for any of the most dense portions of the body. The beating of the heart, movement of the diaphragm, etc., may be seen by means of the fluoroscope with surprising distinctness.

We have already stated some of the most important results obtained with the X-rays. These are chiefly in the domain of Surgery. Foreign bodies, if opaque to the X-rays, can be seen and located in almost any part of the body, especially the bones and joints. Calculi of the bladder and kidney are found to cast a shadow so that their size and position can be determined, and even diseased blood vessels containing lime salts may be outlined. Pieces of iron and steel show their location in the eye and can be removed with ease. The X-rays may, we hope, also determine the amount of disease in the temporal bone, and by proper illumination, opaque bodies in the membrana tympani. Some of the most successful results of the X-rays have been to locate foreign bodies in the esophagus and stomach. Several cases, both in children and adults have been relieved by location of these foreign bodies, and the life of the individual saved from a horrible death by a careful operation.

Is there any risk in employing the Roentgen Rays? In only one patient who had the Rays applied freely, he stated that the pains in his back were made worse by the application. In certain peculiarly constituted individuals the X-rays have produced burns. This we think can almost always be prevented by care and not bringing the tubes too near to the individual operated upon by producing an induced current in the parts. This is stated to have been prevented by the use of gold or "aluminum foil. The induced currents are formed on the foil and carried by the wire to the earth."*

As most of the apparatus for the proper use of the Roentgen Rays are of great delicacy, no one should hastily employ them who is not familiar with electricity and its laws. Also before using them in a public way make a full use of them by numerous experiments, so as to be perfectly familiar with them. I believe that with ordinary care in the hands of an expert, injury is very rare, yet in one who is not thoroughly conversant damage may result to the reputation of these valuable means of diagnosis. Such has resulted in the case of "Punzo" of Elmira, whose death was attributed to their improper use. We give an abstract of the report of the physician who employed the X-rays.

"Punzo" was in the company of Orme's wife when killed. The husband fired three shots, one of them taking effect in Punzo's head, and two of them wounding the wife. Punzo was brought to the hospital in Elmira, and efforts made to locate the bullet; but in vain.

* The Application of the Roentgen Rays in Medical Diagnosis: Charles Lester Leonard, M. D.; Journal American Medical Association. Dec. 4th, 1897.

Three times the X-rays were used. The victim died August 12, 1897.

The "Warner Holtz machine" was used to generate the electricity in connection with the X-rays used in the case. At the trial the fluoroscope, also the hospital car upon which Punzo was placed when under the X-rays, and the large wooden head rest and rubber coverings were exhibited. During the trial a deputy sheriff submitted his head to the rays for five minutes with the identical machine which is alleged to have killed Punzo, to demonstrate that the rays were not injurious.

Dr. Frank W. Ross, one of the physicians who operated the rays upon Punzo, said the patient had been insulated so that none of the current passed through his body, but was totally expended in the Crooke's tubes. The experts for the defense testified that the injury to Punzo was more from the electricity which passed through him than from the X-rays. The current generated by the machine used in the attempt to photograph Punzo was not sufficient to cause harm, the doctor said, and he demonstrated the fact by submitting himself to tests under it without injurious effects.

Dr. Ross said that he had never known of an instance of injury from X-rays generated by a static machine. He had never heard of a case of burning by X-rays which failed to show surface indications. He himself had been exposed to X-rays from the machine in hundreds of instances, and had never suffered the slightest injury.

In charging the jury Justice Smith advised them not to bring in a verdict of murder in the first degree. He took up the question as to whether the surgeons were guilty of gross maltreatment in the use of the X-ray, saying—

"If surgeons with wilfulness, recklessness and bad faith, inflict such treatment as is calculated to cause death, then this defendant is not responsible for his death. But if the surgeons attending make an honest mistake in treatment—a mistake in judgment as to what is the course to pursue—and that mistake contributes to death, then it does not relieve the defendant if the agent he administered is an efficient contributing cause. The defendant is liable unless the treatment evidences wilfulness and recklessness.

"It is for you to consider whether the treatment of Punzo evidenced any wilfulness or recklessness in the use of the X-rays, the anæsthetic or the probe, as is claimed by the defense."

The jury on the first ballot stood seven for acquittal and five for conviction; on the second ten to two, and agreed after being out seventeen hours.

The jurors refused to discuss the case and would not say what effects the X-rays evidence had in the defendant's acquittal, but it is generally believed that the mass of conflicting testimony relative to the use of the mysterious rays raised a doubt in the minds of the jurors, the benefit of which was given to the defendant. The verdict was received with cheers in the court room.

The defendant was released on \$1,000 bail in the afternoon for appearance in the County Court next month, on an indictment charging him with assault of the first degree for shooting his wife who recovered.

THE CLINICAL TYPES OF MALARIA AS SEEN IN SAVANNAH.*

By EUGENE R. CORSON, B. S., M. D.
Savannah, Ga.

I purpose in this paper to indicate from a clinical standpoint, and in as sharp lines and as concisely as possible, the types of malaria met with in this city and the surrounding country. While the discovery of the plasmodium of Laveran has for the first time put the etiology and the pathology of malaria upon a scientific basis, it has changed but little the lines which have separated the clinical types, for their features are still clinically clear, and the classification rests largely upon a clinical basis. To be sure, the forms found in the blood in the simple intermittents, in the quartans, and in the æstivo-autumnal fevers show distinctive differences, yet the clinical differences are stronger, and carry us even further in our classification. The subject of the microscopic findings is so vast and so important that it will demand a separate paper and a discussion of the subject, taking up perhaps more than one meeting of our Clinical Society.

When I first came to Savannah the people were drinking the river water, and pump water which came from a few feet under ground. The streets were unpaved. There was practically no drainage of the surrounding country. I have seen, after heavy rains, ponds in the southern and western parts of the city's outskirts which could float good sized boats. This state of affairs has gone by, for Savannah at least, forever. The changes for the better are only too manifest. We now drink pure artesian water, and by pure I mean water uncontaminated by surface drainage; many streets have been paved and cleaned; the drainage of the surrounding country has been improved, and many sanitary measures have been enforced.

This change for the better, from a sanitary standpoint, is no greater than the change which has taken place in the manifestations of malaria. I have heard from old residents of the city that the prevalence of malaria in its severer and even pernicious forms was greater in the period antedating that which first came under my observation. The sharp remittents, or bilious remittents, as they were called, were very common, especially among those drinking pump water, and whose occupations exposed them to the direct influences of the malarial poison. At that time, too, I saw more of

* Paper read before the Clinical Society of St. James Dispensary, Feb. 11th, 1896.

the hæmorrhagic type and of the malarial cachexia. I was struck by the greater prevalence of the remittent over the intermittent types, the simple tertian intermittent was the exception. While at that time I can recall several cases of the congestive and comatose type and at least two cases of the algid or choleraic type—which indicates more than any other form the sudden and overwhelming invasion of the system by the malarial poison—the only case of this type for several years came to me recently, and that this summer, in the person of a night watchman on the river.

This great improvement in the last few years but tallies with an evident improvement in malarial regions all over our country which have become larger centers of population, have been subjected to better drainage and to improved sanitary measures in the every-day life of the people.

There seems to be no doubt to-day that the direct cause of malaria has been found in a living entity, the plasmodium of Laveran. Whether the various amœboid forms found in the blood are one or more distinct species has not been absolutely settled, and will not be until the life-cycle of the plasmodium is better known as well as its history outside the body. Take any disease whose pathology and etiology are well known and the different types it may assume depend very largely upon the soil in which it has taken root, the patient's constitution, and the climatic and telluric conditions go for less. But in malaria these causative factors are reversed, and we find that locality is of prime importance in determining the type. The pernicious types are as rare in northern and temperate latitudes as the simple intermittent type is the exception in the tropics. Perhaps no morbid agent known to us shows so many phases, so many degrees of virulence dependent upon atmospheric and telluric influences. The poison may enter the system so inhibited by unfavorable conditions for its own growth that even the favorable conditions *intra sanguinem* cannot revive in it its tropical vigor.

Long confinement under ground does not appear to modify its character; turning up the soil and quarrying out rocks seems to liberate it, and it assumes the type characteristic of the locality. These locality characteristics are at times so marked that they could be fenced off into lots.

Though one attack of malaria does not give immunity against subsequent attacks but, on the contrary, rather predisposes to future malarial trouble, it does act as a partial protection against the pernicious forms. In other words, one long resident in a malarial country, would escape a malarial exposure, or suffer only from a larval form of the disease, an exposure which would call forth a pernicious or fatal form in one unacclimated. Thus the new comers and the unacclimated give us the pure types while the old residents show more of the larval and mixed forms. I have noticed in Savannah how rare the simple intermittent type is during certain years, and that it suddenly shows itself again with an influx of new

residents who have not lived in a malarial region. The virgin soil has, therefore, a great influence upon the purity of the type. If exposed to a mitigated form of the poison it shows the simple intermittent type while an exposure to a severe form will bring out the typical pernicious intermittent or remittent type.

And coming more directly to the subject proper of my paper I would call attention to the *latent forms* of malaria which are met with here constantly in those who, living the year round exposed, to a certain extent, to malarial influences, mild or modified, carry with them daily a certain number of plasmodia which the vitality of the system keeps in check, and which manifest themselves only when this vitality is lowered by any cause. I have seen typical intermittent fever develop in a child within a few hours after falling down stairs. In the same way I have seen it develop after a simple cold or a chilling of the body, and even after a nervous shock. I have seen it after confinement, though not so often as one might expect. How often it breaks out after a change of climate, even to a most salubrious one! On two occasions I have had a personal experience with this latent form. I have left Savannah simply tired or let down by work and the hot summer to develop a typical chill and fever in the bracing climate of the North and in a locality free from malaria. This explains how frequently the plasmodium is found when there are no other evidences of the disease and the patient would pass as fairly well or perfectly so. And this must be considered in judging of the significance of the presence of the plasmodium when other morbid conditions are present. This is a point which offers an opportunity for original work, and I should like to see the members of this society take it up. If those who have the time and the proper training will undertake it valuable results can be obtained. A careful examination of the blood in 1000 cases say, apparently healthy, would thoroughly test this question. A valuable side light would be thrown upon this important subject by an examination of the blood of many animals, wild and domesticated. It has already been demonstrated, I believe, that the plasmodium lives in the blood of certain animals, living out its own little life, as it does in the marshes and in the juices of plants, without in any way affecting its host; and to a limited extent I believe it does in man. Great as is the discovery of the plasmodium from the standpoint of etiology and diagnosis, from present knowledge it is the diagnosis in the broad sense only. Although different forms are met with in the intermittent and remittent æstivo-autumnal type, we have been able to draw no sharper line than those already drawn from the clinical symptoms.

Before attempting to draw any distinct pictures of the various malarial types a brief consideration of certain characteristics of malaria in general will aid us in our classification and in drawing sharp lines between types which run into each other.

Periodicity may well be set down as the main characteristic in malaria, but it is as a repetitional periodicity which so strongly

individualizes this disease. There are many diseases which manifest themselves in periods almost like clockwork, but they don't act the play all over again as malaria does. Other diseases may play their parts through several acts with great regularity, but malaria proper is a one-act drama which she never tires of repeating, unless the one attack destroys the patient or quinine pulls down the curtain.

Another characteristic already mentioned, though not so individual, is that the malarial type depends more upon conditions outside the body than within it. Certain regions have distinct types which come out fairly clear in all those subjected to its influence, be they young or old, strong or weak. I have seen here in Savannah, when a simple intermittent was prevalent, old men and babies in arms go through the chill, fever and sweat, though it must be admitted that the typical chill and fever is not so common in very young children. I have also seen this feature, though not so marked, when a remittent type was prevalent.

Another feature worthy of notice is that though the temperature curve is important as distinguishing the type, the severity of the infection is not by any means to be gauged by the height of the fever, many of the simple intermittents and remittents showing a high evening rise, while the severer forms show but a moderate one.

Many as are the phases of the malarial manifestations which come to us, and much as the different types run into each other, these types are few and can be drawn with sharp, bold lines, and I shall attempt as well as I can to characterize them and show their relationship to each other.

I have thought it best to follow the classification laid down by Thayer. Though he draws largely from European authorities he has made careful investigations of his own in this country, and his book is well up to date. The only additions I have made are the introduction of the simple remittent as distinct from the irregular or continued fevers under the first division of the simple regularly intermittent, and the bilious remittent under the second division of æstivo-autumnal, as distinct from the pernicious or malignant group:

1. The simple regularly intermittent fevers.
 - (a) Tertian.
 - (b) Double tertian—quotidian intermittent.
 - (c) Simple remittent.
 - (d) Irregular continued fever.
2. Quartan—
 - (a) Single quartan.
 - (b) Double quartan.
 - (c) Triple quartan—quotidian intermittent.
3. Æstivo-autumnal.

(a) quotidian intermittent (b) æstival tertian (c) bilious remittent (d) pernicious or malignant.	}	Sometimes passing into the pernicious.
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- (a) comatose.
- (b) algid.
- (c) hæmorrhagic.
- (d) hæmoglobinuric.

4. Chronic malarial cachexia.

To disentangle this very irregular and intricate skein, we naturally pick up the thread at the simple chill and fever end. The simple intermittent type, be it quotidian or tertian in form, represents what may be considered a normal dose of the disease, and especially when introduced on a virgin soil, in one who is for the first time exposed to the malarial poison. The clinical picture is so characteristic and so well known that it is idle to describe the symptoms. They are well known to the layman and he who runs may read. A case promptly treated after the first attack, will, in a very large majority of the cases, miss the second and the subsequent attacks. Corre, in his voluminous work, speaks of a *fièvre éphémère paludienne*, an ephemeral paludal fever, as a distinct form. I myself have not met with it in Savannah. I have never seen a case left to itself when the malarial poison was fully satisfied by a simple fever with its three stages of chill, fever and sweat, although, of course, I am willing to admit its occurrence. I should like to hear an expression of opinion on the subject from other members of this Society. I have seen here the quotidian in a few cases, the double quotidian, not at all; the tertian occurs in the largest majority of cases coming under the head of the simple intermittents.

As readily seen, they are but phases of the same type, and they show the same forms in the blood. It is a common observation that after the first paroxysm, if the case is yielding to treatment, each subsequent chill comes later or is of a milder form, until finally when the time comes round again, the paroxysm is replaced by a simple malaise, and the malarial symptoms cease. It is also a common experience with me that unless the treatment is kept up past the 14th, and sometimes past the 21st day, there will on these days be a repetition of the original trouble. I have also noticed this in the remittent type.

If, on the contrary, the original paroxysm is not treated, or the infection is a severe one, the subsequent paroxysms come earlier, and become anticipative, and frequently run into each other until the type becomes remittent, but this remittent type is a simple one, and the symptoms show no greater constitutional disturbance than the symptoms of the fever stage in the simple intermittents; the fever may be high, but the pulse is strong and not too frequent, there may be nausea and vomiting, the bowels loose or constipated, the ever present enlarged spleen, the tongue coated, large and flabby, the urine high colored, and only very rarely with a trace of albumen, but the mind is clear and the face shows no anxiety. Under proper treatment they yield on the 5th, 7th, or 9th day usually.

A form described by Thayer as the irregular or continued fever,

coming under this first division is very closely related to what I have just described, as simple remittent. I have seen many cases of it here. They occur with those who fail to get the proper treatment and the intermittent runs into the simple remittent at first, and then assumes an irregular type, which, having got some headway, is harder to break, and under proper treatment even, takes longer to eradicate. The malarial anæmia is more evident, and I have seen it run into a typical cachexia just as difficult to eradicate as the cachexia arising from the severer æstivo-autumnal form. Thayer regards the severe cachexia as wholly due to this latter type, but I am quite sure that I have seen it follow the long continued simple type. And just here let me mention an observation of my own which I have not seen mentioned in the literature on the subject: It is that the apparently simple intermittent type, the old fashioned chill and fever, though easier to overcome at the time, is harder to eradicate than the severe remittent type, even though due to the æstivo-autumnal parasite. One may have a sharp remittent æstivo-autumnal fever, recover, and never be aware again of any malarial trouble, provided, of course, there be no new exposure, while he who gets a good dose of chill and fever is very apt to have it again, and it is that form of it which is apparently inhibited whose continuance leads to that malarial cachexia which does not kill but which keeps the patient always wretched. Prevented from breaking out externally it carries out its morbid processes in secret.

And one word more as to this irregular or continued fever, I draw a sharp line between it and the long continued fever running two, three, four or more weeks, unaffected by quinine or any drug in fact, and stopping of its own sweet will. In the former there is the evident malarial cachexia, the enlarged spleen, the plasmodium in the blood, and a history of undoubted malarial intermittent or remittent fever, and which, moreover, does yield to quinine if though tardily. In the latter the malarial history is wanting, there is no cachexia, the spleen if enlarged at all, is only slightly so, there is no local evidence of inflammation anywhere, and the fever is absolutely uninfluenced by quinine or any other remedy known to us. The plasmodium is wanting, or if found at all is about as frequent as in many cases where the patient shows no evidence of malaria. These cases are not typical or even atypical typhoid, their etiology is absolutely unknown, though I myself believe they are of enteric origin.

Thus far then we may put down the tertian, the quotidian (double tertian), the simple remittent and the irregular or continued fever, all subtypes of the simple regularly intermittent fevers. They constitute a goodly proportion of the cases of malaria which we are called upon to treat from early spring to midsummer, and they get well under judicious treatment, though, as I have already stated, the typical chill and fever type is much less common than the other forms, and I have seen years when I have failed to see them

at all. As I have shown in my paper on the Colored Race, a goodly number of the cases are negroes, due to the fact that they are more exposed and that they take less precaution and less care of themselves when sick. A certain immunity which the negro years ago could boast of, due undoubtedly to a certain racial immunity brought about by his natural habitat, has been growing weaker year by year, and to-day he is not very far behind the white man.

Quartan fever, either clinically or microscopically, I have failed to meet with in Savannah. If it occurs here it must be rare; indeed it is rare throughout the United States, and Thayer found but five cases out of 542 cases of malaria observed at the Johns Hopkins Hospital, one occurring in the first half of the year and four in the second half.

We come now to the æstivo-autumnal, or "fall fevers," as they are known here, and they constitute what we may consider as malaria proper for this part of the country. They are the cases which demand timely and active treatment; they are the cases which give us our deaths from malaria. According to my experience they begin here about the first of August, though we may have straggling cases during the month of July. and in those years which are especially unhealthy they occur throughout the summer, though this state of affairs is getting less and less each year with a putting off of the evil day, due undoubtedly, as I have already stated, to the improvement in city and county sanitation. This last year, speaking in a general way, our whole Southern country has been very healthy, and judging from the sale of quinine, the fevers this year have been reduced one-half. I get this information from one who has watched the sale of quinine in North and South Carolina, Georgia and Florida, I think that all the members of this Society have had this experience this year.

Thayer in his recent work divides the æstivo-autumnal fevers into the three divisions of quotidian, intermittent, æstival tertian and pernicious or malignant, the latter group subdivided into comatose, algid, hæmorrhagic and hæmoglobinuric. My own experience leads me to add a fourth type to the three first divisions of æstivo-autumnal, namely, bilious remittent, which though sometimes passing into the malignant, usually here does not, and has sufficient characteristics to entitle it to a distinct type. I shall describe it at some length.

While in the first group of simple intermittents the repetitional periodicity is a marked feature, as well as the regular sequence of the different stages, the æstivo-autumnal fevers are less marked in their periodicity and the sequence of their various stages anything but regular. Even the quotidian intermittent and the æstival tertian, which, in a general way, approach the nearest to the simple intermittents, show irregularity in the time of the paroxysm, and an evident tendency to run into the remittent type. The sequence in the chill, fever and sweat is very irregular. The chill is sometimes

absent, the sweat is slight frequently and sometimes absent, and the patient in the interval not so relieved as in the simpler type. If not promptly treated, the severe remittent type rapidly develops and we have a decidedly sick patient to deal with.

This remittent type characterized here as "bilious remittent" frequently starts off without any preliminary paroxysm, though the patient complains of malaise more or less pronounced one or more days before. The chill may be severe, though usually it is not so, the fever, however, is decided, reaching 103, 104, 105, or 106 even. I can recall one patient with a temperature of 106 rapidly yielding to quinine. The face is flushed, the conjunctivæ injected, the skin sallow, and the whole appearance shows the patient to be decidedly ill. The pulse varies; in the less severe cases it is full, bounding and rapid, the rate being in keeping with the height of the fever. In the severer cases where the visceral congestions are greater the pulse is apt to be compressed. A pulse of 90 with a temperature of 105 I should call compressed, though I have frequently found it 50 or 60 in these severe forms. There is almost always great vascular tension, so that the dicrotic pulse is rare. A severe throbbing headache is the rule, acute neuralgic pains uncommon, with the exception of the intercostal pain over the liver or spleen. The tongue is usually large and flabby, showing the imprints of the teeth, and more or less coated. Vomiting is the rule, and the vomit consists of mucus and bile, the latter ingredient in large amounts. In the severer forms there is frequently a coffee-ground vomit. I had a marked case of this last spring. Liquids and liquid ingesta are usually vomited in the beginning; this may continue until the fever is controlled. The lungs show congestion and a slight general bronchitis. There is sensitiveness over the liver and the enlarged spleen; the abdomen is almost always distended; the bowels are constipated or loose, usually the former. When loose they are pronounced bilious stools, sometimes dysenteric. The urine is reduced in quantity, of high specific gravity, contains a large amount of coloring matter, and occasionally a trace of albumen with hyaline casts. Women may abort; non-pregnant women may have menorrhagia or metrorrhagia. There is usually somnolence, the sleep fitful and the patient harassed by disagreeable dreams; there is often mild delirium. In the sthenic cases the skin is hot and dry, often mottled; in the asthenic cases the skin is clammy, with cold extremities; as the case improves the skin becomes moist and the perspiration warm. In this form of remittent the remissions in the beginning are not marked usually, they occur about 1, 2, 3, or 4 o'clock A. M., and only as the fever begins to yield do the remissions become marked. The severity of the case may often be gauged by the extent of the remission, though it must be remembered that in the pernicious forms of the comatose and the algid, especially the latter, the remissions may be very great in the beginning and both the patient and physician may be thrown off their guard by an

apparently mild attack. The pulse improves in the remission, and sometimes the pulse improvement is greater than the improvement in the temperature which is a good sign, while the contrary condition when the pulse does not improve in the remission or may be worse argues badly for the patient. With improvement there is often a critical diarrhoea, the urine improves in appearance and quantity, the perspiration becomes profuse and warm, and the color of the skin improves, losing its mottled and congested appearance. Under proper treatment a large majority of cases recover, and the fever is controlled by the 5th, 7th or 9th day, rarely going to 14 or 21 days.

With young children the outlook is not so good, the disease is very apt to assume the cerebral type, with congestion of the brain, convulsions, and very high temperature. In the fall of 1896 I had two such cases ending fatally, the temperature reaching 109°. The differential diagnosis between this disease and meningitis proper is to be considered, though I do not think the differentiation is difficult.

This type, having in the beginning all of the features above mentioned, may pass, if not promptly treated, into the various subtypes of pernicious fever, presently to be described.

As to the hypothetical type of typho-malaria fever, a combination of malaria and typhoid fever, I have never seen a case, and while unwilling to deny its existence, must believe it to be a very rare condition. The simple continued fever frequently seen here, which shows no local inflammation anywhere, which has no symptoms which are in any way associated with genuine typhoid as we know it, and which does not yield to quinine, or to arsenic, strychnia, or any other malarial remedy, I throw completely out of the malarial group and class as an enteric fever, possibly in some cases a genuine typhoid modified by the climatic and telluric conditions existing here, but in a majority of the cases an enteric infection differing from the well known typhoid bacillus. Almost without exception the unmistakable typhoids treated by me here have been brought to Savannah from other parts, and chiefly among travelers, strangers, or railroad men. While admitting genuine typhoid arising here I believe it is much modified by our conditions, certainly its type is a mitigated one.

On the contrary, the long continued malarial fevers resisting quinine give unmistakable evidence of their origin, by a more or less pronounced malarial cachexia, a very pronounced enlargement of the spleen, and an unmistakable history of malaria in the past, not to mention strong evidence from blood examination. Even in these cases I am strongly of the opinion that the anæmia and the cachexia induced by malaria so reduce the general vitality that other infections take root, often quite sufficient in themselves to keep up the fever.

Undoubtedly it will not be long before advances in bacteriology and serum therapy will clear up all these questions.

Of the pernicious forms of malaria met with here the congestive

and comatose stands first, so far as my experience goes. It may come on very suddenly assuming the intermittent type, or it may appear in the remittent form. In either case the symptoms point to a severe infection with cerebral congestion. This may begin with mental excitement, almost maniacal, passing into hebetude, mild delirium, stupor, and finally deep coma with complete unconsciousness. The fever is usually high, the pulse at first frequent, full, bounding, and later compressed, or it may be compressed from the start. The breathing is labored, and Cheyne-Stokes respiration is not infrequent; face expressionless, turgid, mottled, extremities blue, with ever a tendency to cold and clammy skin; urine much reduced in quantity, high specific gravity, loaded with coloring matter, often albuminous, not infrequently entirely suppressed.

Abdomen distended, bowels constipated or loose, usually the former; the pupils do not reach to lights, and it may be quite impossible to rouse the patient at all. This is a very fatal form, though not so fatal as the choleraic form. Probably twenty cases cover the number I have seen in the last seventeen years, and most of these during the earlier years of this period, out of which I can recall two recoveries.

The choleraic type is quite distinct and differs in many respects from the preceding. I can recall three cases and they all died, though one lingered some time. A Hippocratic face, cold cyanotic and clammy skin; profuse watery discharges, anuria, mind quite clear until near the end. The base of the brain and the medulla rather than the cerebral cortex are involved; the pulse is rapid, without tension, thready, flickering, and quite imperceptible at the wrist some hours before death; the respiration is superficial, rapid, sighing. When once seen the picture is not to be forgotten. I regard it as the most fatal of all the types, and as showing more forcibly than any other form, a sudden and complete drenching of the system by poison. The hæmorrhagic type is as characteristic as the two preceding, and in my experience for frequency here comes between them. I suppose I have seen about fifteen cases and can recall four or five recoveries, but with them the jaundice was never very marked and the secretion of urine not much reduced. Where the type has been severe with intense jaundice, and the hæmorrhagic tendency general, and with a great reduction in the amount of urine secreted, my patients have died. The fever in this type is not usually high, it is sometimes as low as in the choleraic form; the pulse is usually bad in every way, rapid and without tension; the ioterus is sometimes intense, purpuric spots not uncommon; the spleen very large, and the liver also preceptibly enlarged; the mind is usually clear, but I have seen deep coma as in the comatose type; the bowels are often loose and dysenteric; the kidneys seem to be the chief outlet for the blood, but I have seen hæmorrhages from the gums, the lungs, the stomach, the bowels, and the uterus. The hæmaturia is usually associated with more or less hæmoglobinuria.

I have taken yellow fever experts, so called, to see these cases, and they tell me that they are not clinically to be differentiated from malignant yellow fever. They spoke the truth, for until the specific germ of this disease can be readily recognized there will always be doubt in the diagnosis, even though an epidemic be prevailing, barring, of course, the exclusion of yellow fever by finding the plasmodium, and we still have the problem to face of a possible combination of the two diseases. A typical case of hæmoglobinuria of malarial origin without hæmaturia, I have not seen, nor have I seen the hæmoglobinuria due to quinine. I have met with one case of hæmoglobinuria in labor which was entirely independent of any malaria. Certainly it must be very rare here. Though classed among the pernicious forms I can imagine its occurrence with any of the severer types. It seems to depend largely upon telluric influences, for it prevails in certain regions where the soil, rather than the climate seems to be the predisposing cause. The condition with hæmaturia and with other symptoms of the hæmorrhagic type is by no means uncommon, and the mortality seems to be about the same.

And finally a few words about the chronic form of malarial cachexia. We have all seen many cases of it here, chiefly those who come to us from the surrounding country, the dry, scurfy, yellow skin, the anæmia of skin and mucous membranes, the typical pulse of anæmia, the tendency to hæmorrhage, the greatly enlarged spleen, the enlarged, and sometimes contracted liver, the tympanitis, the constipation or the diarrhœa, the high colored urine, the large flabby tongue, sometimes clean and sometimes coated, give us a picture with which we are all familiar, and which really needs no further description at my hands. Without fever, this condition yields rapidly to treatment, with fever, however slight, the cure is greatly delayed. This, at least, is my experience.

This completes what I have to say of the clinical types proper. I wish now before closing to say a few words about a malarial condition, which, from a clinical standpoint, is most important from the fact that it is apt to be overlooked. I speak of the larval or masked forms of malaria which we constantly meet with here among those who have lived some time in malarial regions, who have either recovered from previous attacks, or who have been more or less sickly from a slow and slight form of malarial poisoning, manifesting itself in obscure local troubles, and *without any apparent anæmia or cachexia*. This mild or masked infection shows itself by forms of neuralgia, certain dyspeptic symptoms, torpid liver, obscure abdominal pains, muscular pains, menstrual irregularities, bladder symptoms, which are sometimes severe, irregular circulation, certain eye and ear symptoms, and catarrhal conditions of the mucous membranes. We are to be guided here by a malarial anamnesis, by a periodicity, marked or obscure, and by a careful blood examination. They usually yield rapidly to a judicious anti-malarial treatment.

You will have noticed that I have said practically nothing as to the visceral complications in the different types. This subject is sufficiently large to demand a separate paper before this Society, and I would suggest as a title "The Visceral Lesions of Malaria," a subject full of interest and calculated to bring out a most instructive discussion.

A CASE OF TUMOR OF THE CEREBELLUM.

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The following case, while presenting no unusual symptoms, may, however, serve to emphasize certain points in the diagnosis of tumor of the cerebellum.

The patient W. J. S., Irish, 27 years of age, a brass finisher by occupation, was admitted into the city hospital November 24, 1896. He stated that he had suffered from lead poisoning, and gave a history of syphilis. Examination revealed the presence of pulmonary tuberculosis involving only the apices of the lungs. No particular attention was paid to the case as it was regarded as simply one of pulmonary tuberculosis. Some months later my attention was directed to the patient on account of his complaint of headache. This head pain was described as more or less continuous and of a dull boring character. The reflexes were not notably altered, there were no sensory disturbances, no muscular atrophy, and general intelligence was good. When I made the man walk down the ward there was a tendency to stagger to the right side. Repeated examinations confirmed this. From the continuous pain and the staggering gait with reeling to the right side, a diagnosis of tumor of the right lobe of the cerebellum was made. The diagnosis of intracranial tumor received strong support from the examination of the eyes, which showed choked discs. Giving the patient the benefit of the doubt as to whether the tumor might not be of syphilitic origin he was put upon mercurial inunctions with moderately large doses of iodide of potash. Under this treatment he improved somewhat, but the iodide soon upset his stomach and had to be discontinued. In the first part of June a severe diarrhoea developed and the patient died the 8th of the same month. Being out of the city at the time I can only give the brief post mortem notes. All the organs were normal except the lungs and intestines which showed abundant tubercles, and the brain.

Springing from the meninges and involving the right lobe of the cerebellum was a tumor 4 c. m. by 3 c. m. The tissue of the right lobe of the cerebellum around the tumor was broken down and presented a yellowish appearance. Microscopic examination of the tumor showed it to be tuberculous.

The points of interest in this case are the emphasis placed upon two symptoms, namely, continuous head pain and the staggering gait. It is a fairly safe rule to follow, when a patient complains of pain in the head lasting for months with no interruption, to regard the case as a possible brain tumor. The pain in tumor of the cerebellum is usually, though not always, in the occipital region. Again there is very often regional tenderness on percussion, which was present in this case though not so marked as I have several times seen it. The presence of choked discs practically made the diagnosis certain. There was no nausea until after the administration of the iodide of potash; and in my experience nausea is not as common a symptom of brain tumor as the text books would seem to indicate. The localization of the tumor was rendered comparatively easy by the presence of cerebellar ataxy.

Recently doubt has been cast upon the value of the staggering or reeling to one or the other side as diagnostic of involvement of the cerebellum on the side to which the patient reels. The case recorded above is I believe the fourth in which I have been able to correctly diagnose the side of the cerebellum involved by relying on this symptom. The temporary improvement which apparently was due to the vigorous antisyphilitic treatment in this case shows how easy it is to deceive ourselves in matters therapeutical.

OPIUM IN INDIA.

By ROBERT D. RUDOLF, M. D., Edin,
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[CONCLUDED.]

As regards the *composition* of Indian opium, it is peculiar in containing less morphine and more narcotine than the Smyrna variety. It contains more morphine than Chinese or Persian opiums, and much more narcotine. This excess of narcotine in Indian opium is well worth noting. Narcotine has a more convulsive and less narcotic action than morphia. Squire, in his *Companion to the British Pharmacopeia*, states that it has no narcotising action at all, and hence has been sometimes called Anarcotine.

Bihar, that is, Patna, opium, when thoroughly dried contains 5.16 per cent. by weight of morphine against 9.64 in Smyrna opium. On the other hand Patna opium contains 8.24 per cent. by weight of narcotine, and Smyrna opium only 2.26 per cent.

The opium belongs to the government from the first, and a large staff of officers are employed to prevent the local sale and use of it by the cultivators. But with all these precautions a certain amount is used thus, and the presence of the dish of opium in the hut not infrequently tempts natives—usually women—to steal enough to do

away with themselves. It is also a fairly commonly used poison in cases of murder, although arsenic is the commonest here.

A good crop of opium is the most profitable one that can be grown by the villagers but the risks are many, and it is seldom that a man secures a perfect 16 anna harvest. A 16 anna means a perfect one, from the idea that there are 16 annas in the rupee. A 12 anna crop would thus be a 75 per cent. one.

But the poppy plant is a very delicate one, and its life and development are endangered by many things. Thus, the ground must be very rich and contain a good deal of natural moisture or the seed will not germinate. When the plants are above ground, a cold spell of weather may kill them. Later on the blossoms may be destroyed by hail, heavy rain or high wind; but the most risky time of all is when the capsules have been lanced and the opium is lying on the surface. Then a heavy rainfall will wash most of it away, or a high wind blowing the plants about may rub them against each other and knock quantities of the opium off. Thus, a native who trudges home with the price of a good crop tied up in his loin-cloth may truly breathe his thanks to his gods, and probably will offer up some simple sacrifices to their images. If, on the other hand, he has received little or nothing, or even is in debt to government for part of the advance he has already got, he will quietly make his way back to his village, muttering "*kismet, kismet*" (fate, fate), for the native of India is a great fatalist.

The two great races in India, Hindoos and Mohammedans, use opium largely as an habitual stimulant, as a necessary part of many social ceremonies, as a prophylactic against disease, and as a therapeutic agent.

The exact date on which opium was introduced into India from Asia Minor is doubtful. Some believe that the Rajputs (who are high-caste Hindoos) used it over 2,000 years ago. There is no evidence, however, of the plant being cultivated in India before the sixteenth century, and it was probably then introduced by the Arabs, who also took it first to China.

(1) The *use of opium* has been for long intimately connected with the *social functions* of many classes of Indians. Dr. Norman Chevers, in his "Medical Jurisprudence of India," tells us that *Amal-lar-khana*, "to eat opium together," is the most inviolable pledge among the Rajputs, and an agreement ratified by this ceremony is stronger than any adjuration. If a Rajput pays a visit the first question asked or words uttered are *Amal kya*, "Have you had your opiate?" On a birthday, when all the chiefs convene to congratulate their brethren on another link being added to the chain of years of their age, a large cup is brought forth, a lump of opium is put therein, upon which water is poured and by the aid of a stick a solution is made, to which each helps his neighbor, not with a glass, but with both of his hands held to the mouth. The practice *Amal-lar-khana* was also a social indication that all enmities were at an end; it was

the seal of renewed friendship between individuals or tribes among whom hostilities had previously prevailed.

In July, 1892, the Calcutta Medical Society held a discussion on the use of opium, in which several native medical men spoke of its social use. Dr. Chunder Bose, the president of the society, spoke as follows :

"I cannot find from records when the drug was introduced as a social necessity in this country, but I am in position to state that opium is indispensable in the reception of chiefs, nobles, and men of rank among the Rajputs, the Marwarees, and the Mohammedans of the central provinces, and of Surat and Ahmedabad. The process of welcoming guests with opium either in the form of devotion or highly scented extracts, is called *Kussoba*. The host himself takes the gold or silver cup filled with the preparation of opium, and goes round the party distributing spoonfuls to each of his guests, who drinks it to the health of his host. Infants' and little children's right to the *Kussoba* is not denied by the host. The process is meant to remove anxieties from the mind and to bring about a state of hilarity.

"Different sects of people observe different modes of eating the drug; some take it in its crude state, while others soak it in water or milk, and then drink the fluid and throw away the residue. The well-to-do class keep a separate formula for preparing their own opium; they take a quantity of good opium, mix it up with the powdered seeds of cardamom, bamboo camphor, *Bangsolochun* musk, camphor and saffron to the consistency of a pill mass, and then make pills or boluses according to the dose which they take. These ingredients are added to the drug with the view of augmenting its virtues. The zemindars and the rajas and nawabs of Bengal boil opium in milk, and then they eat the cream only. The process of smoking *madat*, otherwise called *goolie*, is simple, while that of smoking *chandu* is involved and difficult. *Madat* smokers in this part of the country are of a low class, and generally shunned, while the *chandu* smokers are generally better off, though of depraved morals."

Thus it will be seen that opium takes much the same position in social ceremonies in India as alcohol does among western nations.

(2) As an *habitual stimulant* the drug is very largely used. Among some classes, *e. g.*, the Marwarees (bankers) and Sikhs (fighting men) the practice is almost universal. In Behar itself, where opium is chiefly grown, about five per cent. of the Hindoos and thirty per cent. of the Mohammedans habitually use the drug in daily doses of from two to ten grains, and once the dose which suits the individual is reached it is not common for him to exceed it. Occasionally, however, one hears of enormous doses being regularly taken. There are people in India who take their two, four, six, and even eight ounces of solid opium daily, and one case was recorded by Dr. Crombie of a man who ate nine ounces and 225 grains daily, without developing any poisonous symptoms whatever.

It is taken usually in the form of the crude drug made into pills, and half is taken in the morning and the rest at night, half an hour before food. The result is that the drug mixes with the food and thus is very gradually absorbed. When a native commences to take opium the effect at first is to cause constipation and a drying up of the secretions, but after a week or two of habitual use these untoward results wear off and the drug seems to actually stimulate peristalsis. The habitual taking of opium is usually commenced after the age of thirty, very often, to commence with, as a treatment for disease, and is then probably continued for the rest of the man's life. The effect of moderate use on the *native* seems, on the whole a harmless one. The man, as long as he takes his dose regularly, is capable of the highest mental and physical exertion. If, however, his dose be withheld, he suffers extremely.

Prolonged indulgence in the habit does not seem to produce any definite tissue changes which can be detected post mortem. As regards the effect on the brain, some interesting statistics were produced by Dr. Crombie of Calcutta, for the use of the Royal Commission on Opium that sat some three years ago in India. I may summarize them as follows:

Of the total admissions of 2,202 into the lower Bengal asylums during the ten years, 1881-1890, 641 were ganja (Indian hemp) smokers, 117 were spirit drinkers and eight were opium eaters. In other words, 29.1 per cent. used ganja, 5.3 alcohol, and only .35 were opium eaters. Of the 800 admissions during the three years 1888-90, into the Bombay presidency asylums, 132 were ganja smokers (16.5 per cent.), 56 (or 7 per cent.) were spirit drinkers, and 6 (or .75 per cent.) were opium takers—of these six cases attributed to opium five were from the city of Bombay itself, leaving only one for the rest of the province, and he belonged to Hyderabad, in Sindh, where the opium habit is almost universal. In the Madras presidency during the year 1888 the total admissions were 168, and of these 7.1 per cent. were from ganja, 6 per cent. were alcoholics, and none took opium. In the Rangoon asylum, the only one in Burma, the total admissions for the six years ending 1890 were 541, of which 2.9 per cent. were attributed to ganja, 5.91 to alcohol and .92 to opium. The city of Rangoon contains about 15,000 Chinamen, and yet not a single Chinaman was admitted to the asylum during these six years, although a large number of them smoke opium.

To summarize these figures: Out of 3,711 admissions to the various asylums, 801 cases were attributed to ganja, 215 to alcohol, and only 19 to opium; and these figures are the more remarkable when we consider how little alcohol and ganja are used as compared to opium. Dr. Crombie remarked before the commission that, in his experience, it would be "almost justifiable to advance the theory that one of the advantages derived from the native habit of eating opium is a diminished liability to insanity."

As regards the influence of opium eating on longevity, Dr. Roy

Moy Roy, himself an opium eater, has compiled a table of 215 habitual indulgers who had come under his own observation, and it is remarkable, on looking through these tables, to notice how many of the individuals have reached and exceeded the expectant period of life, as taken from English tables, and, of course, it must be remembered that the expectancy of life in England is considerably greater than in India.

The table includes one man who, at the extreme age of 106 years, died a violent death. He was in full possession of his senses and in good health, considering his age, and used to manage a large estate of his own. His custom was to take 180 grains of opium daily, and this he had done for sixty-six years.

The Zantras—the religious books of one of the largest sects of Hindoos—have authoritatively laid down that the practice lengthens life.

One great reason, it seems to me, why opium has been credited with tending to longevity is that it so often acts as a prophylactic to disease. When natives have to undergo any great physical hardship or exposure to cold and damp they take opium, under the firm belief that it helps them to bear up under these difficulties.

The boatmen on the great rivers take it regularly, and they are a happy, healthy and contented lot of men. "They begin work at 6 a. m., and will often work a large, heavy houseboat, dragging it the greater part of the day against the current till 8 p. m., on a hasty meal, snatched at midday, and an occasional chew of opium, all the time happy, jolly and contented."

Dr. Moir of Calcutta says: "Opium is taken very commonly with a view to lessen fatigue and hunger in prolonged hard or long marches. The Bhutia and Gurkha coolies in Lushai land stipulated for opium in their rations, because they believed it lessened fatigue in carrying heavy loads long distances in that hilly country, and because they thought it lessened their susceptibility to fever and did good in fever. The authorities wisely allowed them to have a fixed daily opium ration. I never saw any of these coolies suffering from any symptoms that could be attributed to eating opium, though I have seen some of them beastly drunk."

Smoking of opium is not very prevalent in India, but in some of the large towns it is practiced. Either they smoke *chandru*, which is a watery extract of opium, from which the oily matters have been removed by heat, or *madat*, which is also a watery extract pounded up with charred guava or vine leaves. The former method is practiced by the better class, the latter by the lowest classes.

Pure morphia is little used by natives, but the Bengalee baboos of Calcutta have found it out, and many of them take this most insidious drug in doses of five to fifteen grains daily. As regards large doses of morphia, a Maharajah who died lately at a good old age, used to take twenty-six grains daily, and was a good sportsman and a first-class shot.

(3) As a *prophylactic*, opium is very largely used in India, as well as in other countries, and there seems no doubt that it does act in this way against malaria, rheumatism, dysentery and cholera. As to the exact way in which it acts on the system in exerting its protective power one can only theorize, but the belief is well nigh universal in the East that an opium eater is less apt to suffer from these diseases than one who does not so indulge. This belief is not confined to the East, for opium is largely used in the ten districts of England for this very purpose, as stated by Dr. Lauder Brunton. In the *British Medical Journal* for July, 1881, Dr. Murrell draws attention to this fact, and points out that phthisis is very uncommon among these opium eaters.

Dr. Crombie wrote as follows: "During sporadic outbreaks of cholera among the people of Burrobazar, the victims are those who are either abstemious in their habits or are bhang eaters and ganja smokers. The opium eaters, who often closely attend upon patients, are not affected by the disease. A few months ago a party of twenty men, of all ages, one morning started from No. 9 Hanspooker Lane to Kalighat, to visit the goddess, and returned during the night. They prepared one kind of food and all of them ate it. Early next morning nine of the party got cholera, and succumbed to it, while the rest escaped. On inquiry it was found that those who escaped were habitual opium eaters. But opium eaters during the last epidemic of influenza suffered most severely, and some succumbed to the disease."

During the Poojah season people come to Calcutta from the Terai of Jalpaiguri and Sotatia for treatment of Terai fever and enlarged spleen. The history they give of their illness is interesting. They say that because they have not listened to the advice of opium eaters they are destined to suffer and to die prematurely, for in the Terai the opium eaters are the healthiest of men.

In the Central Provinces and Bombay pills of opium the size of poppy seed are given to the children from the first, and the dose is gradually increased to one grain. The practice is continued until the age of four years. From that age until after thirty opium is seldom used, except in the treatment of disease. It is thus given to children in the belief that it renders them less liable to tetanus and diarrhoea.

The prophylactic action of opium against malaria is probably largely due to the narcotine it contains. Narcotine, in doses of five grains or so, has often been used in the treatment of this disease.

Dr. Hehir of Hyderabad writes thus: "In malarial poisoning there appears to be a hypersensibility of the general vaso-motor center, so that a draft of cold air blowing on the surface, slight gastric irritation, or even slight distension of the bladder, will cause contraction of the cutaneous vessels and shivering, in one suffering from such poisoning. Opium appears to be useful in such conditions, probably by lessening the excitability of the general vaso-motor cen-

ter. This exalted condition of irritability of the general vaso-motor center is one very commonly met with in Hyderabad and its suburbs, and being the determining cause of many of the cases of ague met with, we may often ward off attacks of ague by giving *sedative* doses of opium to lessen those chemical, vital, functional, or metabolic changes (in the protoplasmic constituents) of ganglionic cells of this special center, and thereby keep the blood at the surface, a condition incompatible with the manifestations of an attack of ague."

So much for the habitual use of opium by the people of India. The question naturally arises, How is it that the drug can be used with so much benefit and so little harm by these people, when the opium habit, or, at least, the morphia habit, is so easily acquired by Western nations, and is so dreadful in its results. One reason for this is, undoubtedly, that the opium of India (and also of China) contains much less morphine, but more narcotine, than do other kinds. But I believe that the great reason for the comparative innocuousness of opium on Eastern nations is that it is, so to speak, their *natural* stimulant. It seems as if every people must have some stimulant, speaking generally—take, for example, coca in South America, kola in Africa, and alcohol with Western nations. And as long as they keep to their own stimulant the minimum of harm (though often great harm) is done; but if one nation adopt the stimulant of another great havoc ensues, and the people seem unable to resist desire to take an excessive amount of that stimulant. Alcohol fortunately is forbidden to most races in India, but where this is not the case and they substitute it for opium the results are lamentable. Three years ago an attempt was made by a party in England to make it illegal for opium to be sold in India, except for medicinal purposes. The Government Commission, which sat in the country on the subject, almost unanimously concluded that it was wiser to let things be. With this decision I agree, and hold that the harm and hardship caused by such legislation would far exceed any benefit which might accrue. If the natives of India must have a stimulant to assist them in their social functions, to help them through their daily work (in their opinion), and to protect them against disease, then, by all means, let it be the comparatively harmless opium, rather than the deadly ganja, or the still deadlier alcohol.

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PHOTO-ENGRAVINGS to illustrate accepted articles will be made free of charge, if proper drawings or negatives accompany the manuscript. Electrotypes of such cuts furnished at cost.

PHYSICIANS' WANTS, ETC.—A department will be devoted to the free publication of subscribers' wants, practices for sale, change of location, etc.

SECRETARIES OF MEDICAL SOCIETIES will do us a favor by keeping us informed of dates of meetings of same, etc.

THE QUARANTINE CONVENTION.

When we first heard of the Mobile Quarantine Convention we had an idea that it was to be a convention of physicians, sanitarians and quarantine officers, to devise suitable plans for a more efficient quarantine service. But later, when we saw that railroad men, lawyers and politicians galore were being invited, who were men no doubt skilled in their several callings, but who knew absolutely nothing of the scientific features of quarantine, or of contagious and infectious diseases, we knew the convention would fall far short of its good intentions, if it had any. This was a political meeting, managed by politicians, and in which science was not allowed even as much a chance as the traditional snowball in Hades. The only papers brought before the meeting related to quarantine in its national and state aspects and discussed the doctrine of State's rights and the political features pro and con of national and State quarantine. Although the convention was ostensibly one of the South Atlantic and Gulf States, the delegates from interior northern and middle States who have been prominent in connection with a bill to establish a Department of Public Health opposed to the Marine Hospital service were given equal representation with those of the South Atlantic and Gulf States. Those who went to Mobile to read and discuss papers of science were disgusted in that they failed to secure

attention before this august body of interested medico-political bosses. The time was mostly devoted to the securing of resolutions on certain bills before, or to be later presented to Congress. We did not have a very high ideal for this kind of a convention, and the practical nothing they did was not disappointing to us. When somebody sees proper to call a body of men devoted to science and the welfare of the populace as regards the importation of disease or its causes we will then have a convention whose words will be worth listening to and following out, and we will be nearer to the solution of the vital problem of the protection of the people from politicians and fatal disease germs, from both of which we need deliverance at as early a date as possible.

THE MEDICAL SCHOOL QUESTION.

An enthusiastic friend of ours is anxious to have the old Savannah Medical College reorganized, thinking that thereby Savannah would become once more one of the medical centres of the South. We are unalterably opposed to any more medical schools here or elsewhere. This country is now overburdened with one hundred and fifty, or more, third-rate, one-horse, medical schools, and about two dozen very good ones. Think of adding to the burden! The only justification for a new college would be in the very unlikely case of an ample endowment, say at least, one million. Under such circumstances the crime would be less heinous. Georgia is very fortunate in having but three medical schools, and good ones at that. Only two or three months ago, our able contemporary, the Atlanta Medical and Surgical Journal, called attention in a forcible editorial to the qualities of our colleges in this State, and those of New Orleans, not to mention Virginia.

It would be a crime to start a medical school in Savannah, unless, as we have just stated, an endowment were secured of one or more millions of dollars, in which case no objection could be found, excepting lack of clinical material, and that alone is an insuperable obstacle. Let us hope that the rage for *professorships* will die out, and with it about two-thirds of the medical colleges in our country. Our good schools are the equals of any in Europe; the teaching as thorough, the material as ample, and as a rule the students more earnest, but what a vast chasm separates them from the numerous institutions which disgrace our profession!

THE PURE FOOD LAW IN OHIO AND SCOTT'S EMULSION

The State of Ohio has a most excellent law, known as the "Pure Food Law," which enables the State Board of Health to stop the sale of foods, drugs, proprietary articles, etc., of all kinds, if found impure. This great power, if properly applied, is one of the greatest

utility and benefit, but it can also be most unjustly applied, in an arbitrary manner and not always for the best interests of the people. In this connection we refer particularly to the "Ohio muddle"—law—:n stopping the sale of Scott's Emulsion of Cod Liver Oil, on the ground that it contains morphine. If Scott's Emulsion did contain morphine, we should certainly uphold the action of the Ohio Board of Health, but to say the least, there is a reasonable doubt of such adulteration. We are all familiar with Scott's Emulsion, we have used it for years, probably there is not a physician in this country who does not use it in his practice, and it has never been noticed, so far as we are able to learn, that the use of this Emulsion, even in enormous quantities, ever caused any one to suspect the presence of any derivative of opium. Again, it has frequently been analyzed, and morphine has never been detected. The food and drug laws of Germany, Switzerland and particularly Italy, are very stringent, all proprietary preparations being rigidly excluded which contain any poisons not specifically mentioned on the labels and wrappers. Scott's Emulsion is used in great quantities in all three of the countries mentioned, and the government chemists have never yet found morphine, although we may rest assured that if they could do so, they would assuredly exclude an American product on much flimsier ground. Why is it that the Ohio board has taken this action? Will the excellent journals of that State please tell us something about it?

EDITOR'S TABLE.

The Atlanta Medical and Surgical Journal announces that Dr. Dunbar Roy has purchased an interest and will henceforth be editorially connected with it. We congratulate him, for it cannot be but an honor. The Atlanta Medical and Surgical Journal is one of the foremost monthlies of our country, an able exponent of southern medicine and a credit to its editors. Long may it prosper.

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* *

The Medical News severely criticises the new Philadelphia Medical Journal for allowing certain advertisements to appear in its pages, which its claims to high standards of ethics in advertising do not bear out. Poor "News," it is so spiteful that it overreaches the mark. We have carefully perused the advertising pages of the new journal and find nothing to justify the attack, while the same cannot be said of the Medical News. What does it have to say about the great German and French weekly and monthly journals, which the News so freely quotes? These journals one and all publish the advertisements not only of proprietary preparations, but patent medicines, with the word patent brazenly printed under the name. Why not attack them first, before venting its spleen on the clean, manly, healthy Philadelphia Journal? We should say that the secret lies

in the tremendous loss of subscriptions in Philadelphia and elsewhere which the News will suffer. Hence the attack.

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The application of Widal's test in typhoid to various bacterial diseases has been one of the most interesting and profitable results of strictly scientific medicine. While the results are not yet all that is to be desired, still they have been raised above all possibility of mere coincidence or "diagnostic probability." The natural result of Sanarelli's discovery of the specific bacillus of yellow fever was this new diagnostic application, in itself one of the most convincing proofs of the pathogenicity of the bacillus. It is a matter of surprise that Sanarelli himself did not investigate and demonstrate this reaction of Widal, and much to the credit of Drs. Archinard and Woodson, of New Orleans, who announced their discovery at a meeting of the New Orleans Parish Medical Society, held January 22d.

Specimens of blood, always dried, from fifty undoubted cases of yellow fever were examined. Thirty of the cases were in the Isolation Hospital and twenty in private practice. Twenty specimens with a dilution of 1 in 5 caused agglutination with both *B. icteroides* and *B. typhosus*. These results were attributed to the strength of the solution, the amount of serum present. Ten specimens diluted 1 in 5 and 1 in 40 gave a positive reaction with *B. icteroides* but none with *B. typhosus*; 20 specimens diluted 1 in 10 and 1 in 40 caused a typical agglutinative reaction with *B. icteroides* and had no effect on *B. typhosus*. Specimens of malarial blood containing plasmodia gave no reaction but in one case, said to be continued malaria, but in the blood of which plasmodia could not be demonstrated, gave the reaction with yellow fever bacilli. Dr. Archinard concluded that as with the Widal test in typhoid, about 75 or 80 per cent. of all cases will give a positive reaction.

More recently it has been reported that in dengue no reaction occurred in a number of cases; a significant fact.

Of course, the most interesting point is to know how early in the course of yellow fever this serum reaction occurs, thus positively settling the diagnosis *before* the patient dies or has had time to communicate the disease to a host of others. This has not yet been settled, but probably before next winter opportunity will be given to know more about it.

This discovery would naturally lead to the further discovery of a potent antitoxic serum, and we are informed that numerous experiments are being made under the direction of Sanarelli, with, in the few cases so far briefly mentioned, good results. What a magnificent achievement this would be.

BOOK REVIEWS.

A Text Book on Surgery—General, Operative and Mechanical.—

By John A. Wyeth, M. D., Professor of Surgery in and President of the Faculty of the New York Polyclinic Medical School and Hospital; late Surgeon to Mount Sinai Hospital and Consulting Surgeon to St. Elizabeth's Hospital; Member of the New York Pathological Society; of the New York Surgical Society; of the Academy of Medicine; of the New York State Medical Association; of the New York County Medical Association; Honorary Member of the Texas State Medical Association; of the College of Physicians and Surgeons of Little Rock, Arkansas. Third edition, revised and enlarged. New York: D. Appleton & Co. 1898.

This standard work on surgery, the first edition of which was published in 1886, has now reached the third edition; the second edition was revised and enlarged in 1890. So important have been the advances in surgical pathology, science and technique since that time that the author has found it necessary in order to bring the work strictly up to date to revise and practically rewrite this volume.

By adding that which is new, valuable and acceptable to that which experience has demonstrated to be useful, and carefully revising and eliminating that which with least disadvantage could be left out, the present work exceeds the former by only one hundred and twelve pages. The author's aim in this book is to make it available for quick and ready reference for the busy practitioner, with the addition of elementary pages, which greatly enhances its value to undergraduate students. The introductory section is devoted to surgical pathology and is subdivided into six chapters, which treat of inflammation and repair in the various tissues of the body and of contagious and infectious surgical diseases and their bacteriology.

Chapters VII and VIII are devoted to surgical dressings, sterilization, asepsis and antiseptics and anæsthesia. We regret to see, however, that the author makes no mention of the use of formaldehyde as an antiseptic in wound treatment, or its use in the preparation of catgut and tendon for sutures. We do not agree with the author in the use of glycerin as a lubricant for catheters. While its process of manufacture sterilizes it, its process of handling thereafter may infect it, even though it be an antiseptic of some power.

Chapters IX and X are devoted to the discussion of hemorrhage and minor surgical conditions, with skin grafting and gangrene. Chapter XI deals with bandaging, and chapter XII is given up entirely to the thorough discussion and illustration of amputations. Surgical diseases of the lymphatic, venous and arterial systems is included in chapters XIII, XIV and XV; the bones and joints and measures for their correction are fully treated in chapters XVI and XVII, and chapters XVIII and XX bring out thoroughly regional

anatomy, while XXX and XXXI are devoted to deformities and their correction, and to tumors.

This work and its author are too well known to need any praise or recommendation from us. It stands as the foremost American text book on surgery. The illustrations are superb and are valuable as guides to those who have not had good opportunities in dissection and operating; the numerous colored plates are particularly fine. The typography and binding of the book fully come up to the high order of the subject matter.

The American Year Book of Medicine and Surgery—Being a Yearly Digest of Scientific Progress and Authoritative Opinion in all Branches of Medicine and Surgery, drawn from Journals, Monographs and Text-books of the Leading American and Foreign Authors and Investigators. Collected and Arranged with Critical Editorial Comments by Samuel W. Abbott, M. D., John J. Abel, M. D., J. M. Baldy, M. D., Charles H. Burnett, M. D., Archibald Church, M. D., J. Chalmers Da Costa, M. D., W. A. Newman Dorland, M. D., Louis A. Duhring, M. D., Virgil P. Gibney, M. D., Homer W. Gibney, M. D., Henry A. Griffin, M. D., John Guiteras, M. D., C. A. Hamann, M. D., Howard F. Hansell, M. D., Barton Cooke Hirst, M. D., E. Fletcher Ingals, M. D., Wyatt Johnston, M. D., W. W. Keen, M. D., Henry G. Ohls, M. D., William Pepper, M. D., Wendell Reber, M. D., David Riesman, M. D., Louis Starr, M. D., Alfred Stengel, M. D., G. N. Stewart, M. D., J. R. Tillinghast, Jr., M. D., and Thompson S. Westcott, M. D. Under the General Editorial Charge of George M. Gould, M. D. Illustrated. Philadelphia: W. B. Saunders, 1898. Pp. 3 to 1077.

This magnificent work is, beyond all question, the finest, most complete of its kind. Condensing, as it does, into 1000 pages the practical results of one year's progress of medical knowledge, brief, to the point, complete in every detail, showing no favoritism, and everywhere evidence of judicious criticism, it stands at the head of the most useful class of books which the busy practitioner *must* buy. To keep abreast of the times one must either be a close reader of half a dozen journals, and read eighteen or twenty of the most important new books every year, or else be satisfied with two or three journals and purchase such a work as we are now reviewing. In England *Braitwaith's Retrospect*, and in Germany *Virchow's "Archiv"* or Schmidt's "*Jahrbücher*" represent what Gould's Year Book does to America, but to the latter belongs the credit of even greater completeness, more general reference to the entire literature of medicine, and far more attractive appearance.

All that has been done of value in 1897 will be found succinctly and clearly stated in this invaluable volume. It should be on every physician's office desk; not only for those who write, and must therefore keep abreast of the times, but also those who *treat*, for everything new in therapy can be found in these valuable pages.

The general make-up of the book—type, paper, illustrations, etc.—reflect great credit on the publisher, Saunders, of Philadelphia, and is not out of proportion, or below the general standard of the work. Such works as these reflect great credit not only on the editors and publishers, but on the nation, to whose glory such monuments add lustre.

Elements of Latin.—For students of Medicine and Pharmacy. By George D. Crothers, A. M., M. D., Teacher of Latin and Greek in the St. Joseph (Mo.) High School; formerly Professor of Latin and Greek in the University of Omaha; and Hiram H. Bice, A. M., Instructor in Latin and Greek in the Boys' High School of New York City. $5\frac{1}{4} \times 7\frac{1}{2}$ inches. Pages xii 242. Flexible cloth, \$1.25 net. The F. A. Davis Co., publishers, 1914-16 Cherry street, Philadelphia; 117 W. Forty-second street, New York City; 9 Lakeside Building, 218-220 S. Clark street. Chicago, Ill.

Designed to present in brief form the principles of Latin Etymology which are essential to an intelligent use in medicine, this little work of uninviting title contains more than the elements of Latin. The first chapters are concerned with the declension of nouns and conjugation of verbs, omitting forms and usages not essential to the study of pharmacy and medicine, and then follows a most interesting chapter on prescription writing, with a list of abbreviations in common use which for accuracy should be avoided. Of these the most frequent is perhaps the abbreviation *sulph.*, which may mean either sulphate, sulphide, sulphite, sulphocarbonate, sulphonol, sulphuride, sulphur, and as in the case of zinc may involve both physician and pharmacist in trouble, so the abbreviation *hydr.* is apt to be misleading.

Under the heading "Notes" are found many facts of interest and profit, while the tables which follow present in condensed form declension and conjugation. Besides the general vocabulary there is appended a list of anatomical proper names and their origin, which is of great value to a knowledge of the history of medicine.

The book is of distinct value to every man who aims at accurate prescription writing, and the title in no sense expresses the scope of the work.

Outlines of Rural Hygiene.—For Physicians, Students and Sanitarians. By Harvey B. Bashore, M. D., Inspector for the State Board of Health of Pennsylvania. With an Appendix on The Normal Distribution of Chlorine by Prof. Herbert E. Smith, of Yale University. Illustrated with twenty (20) engravings. $5\frac{1}{2} \times 8$ inches. Pages vi-84. Extra cloth, 75 cents net. The F. A. Davis Co., Publishers, 1914-16 Cherry street, Philadelphia; 117 W. Forty-second street, New York City; 9 Lakeside Building, 218-220 S. Clark street, Chicago, Ill.

Until within a few years the inhabitants of rural districts have paid little or no attention to the rules of sanitation, principally through ignorance of the laws of health. As sanitation has become a science and literature on the subject more or less widely diffused the more progressive towns and villages have been able, through their health officers, to achieve markedly good results, as their reports testify. Most modern treatises on the subject, however, deal with the greater questions pertaining to the health of thickly populated districts, but, even in that connection, it would be wise to turn our attention more often to the question of sanitation in farming districts, from which so many of our food products are obtained.

Dr. Bashore, in writing on rural hygiene, has given not only theories but facts, not only causes but remedies, thus making the book of practical value. He writes somewhat at length on the water supply, discussing wells, cisterns and other sources of water for drinking purposes, and gives directions for the disposal of waste. He advocates most decidedly the use of earth closets and surface drains, giving illustrations and descriptions of both.

The chapter on habitations, including school hygiene and ventilation of school-rooms, is worthy of particular notice, presenting as it does some original ideas on the subject.

Practical is perhaps the most fitting word in which to sum up Dr. Bashore's book, and we feel in reading it that he understands thoroughly the subjects with which he is dealing.

E. B. Treat & Co. announce the speedy publication of the sixteenth edition of the International Medical Annual. The manual for 1898 will contain many special articles of great interest in addition to the regular summaries of the year's work in medicine and surgery, by thirty-eight editors, each contributing to the department with which he is specially identified. Part I will contain a complete report of new therapeutic agents introduced during the year with clinical indications for their use. Part II will be devoted to special articles, including several of great interest and diagnosis. Part III—The dictionary of new treatment, with a complete index of diseases showing the latest therapeutic recommendations, enriched with numerous illustrations and colored plates.

SOCIETY TRANSACTIONS.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, January 20, 1898.

EDWARD G. JANEWAY, M. D., PRESIDENT.

The meeting was in charge of the section on neurology and psychiatry.

PARENTAL DIABETES AS AN ETIOLOGICAL FACTOR IN INSANITY.—*Dr. E. C. Spitzka* read a paper with this title. He said that it had been long known that diabetes, in all its forms, played an important role in family histories. Clouston had described two cases in which he established a direct relation between the glycosuria and the mental aberration. Dr. Savage, of the Bethlehem Royal Asylum, stated that diabetes sometimes alternated with neuroses. In the climacteric neuroses diabetes also played a part. The cases of mental disorder which he had found in the direct descendants of parents numbered forty-six, of which thirty-two were in males and fourteen in females. Thirty-four out of the forty-six patients died in advanced dementia or were in a hopeless condition. In thirteen the transmission was from the paternal, and in thirty-five from the maternal side. Altogether the forty-six were children of forty-one parents. It was worthy of note that of the thirty-two, twenty were of the Jewish race. After reading a number of detailed clinical histories, showing the family relationships and tendencies, and their bearing upon the subject under discussion, Dr. Spitzka said that eleven years ago he had studied two hundred and two patients in an insane asylum, the victims of self-abuse. Of this number, sugar was noted in the urine of fourteen per cent., and, strangely enough, the urine was frequently of moderately low specific gravity. The speaker then pointed out that it was a very common mistake to attribute the condition of these patients to self-abuse, although undoubtedly they very frequently indulged in this vicious habit, and were injuriously affected by it much more than was any other class. The sexual manifestations of these patients are not due to strength, but to abnormalities and weaknesses. Absolute impotence in a diabetic should be regarded as a blessing in disguise, not only to the public, but, above all, to the diabetic himself.

Dr. W. H. Draper said that he had been long interested in the subject of diabetes and allied disorders. At first he had regarded diabetes as a chemical disorder, for it was an attractive theory until one became impressed with its utter incompetence. It did not seem to him that there was much question now about diabetes being a nervous disease; as to the exact lesions and their location, we were not well informed. Its phenomena were not to be explained by a simple defect in the process of digestion; its origin

must be sought in a neurosis. This evening we had been told of certain psychoses observed in diabetics, and it was easy to recognize that these psychoses were important elements in the disease. Perhaps the most striking feature of the disease was the great mental and physical prostration. The advocates of the chemical theory explain this by supposing that the food was not absorbed, but went to waste, and that therefore the force which it was capable of yielding was lost. It was a fact that as soon as the excretion of sugar by the kidneys was diminished, the health and vigor of the individual improved. Most authors recognized the fact that gout, lithæmia, and glycosuria were, so to speak, convertible diseases; that is to say, any one of these diseases might occur in a family and be transmitted. Another interesting fact was that certain neuroses, which were well known to be gouty, were also liable to occur in diabetes. An example was to be found in spasmodic asthma, which was a common disorder in gouty families. Dr. Draper said he could not remember having met with a case of insanity associated with diabetes. For a number of years he had had under his observation a case of insanity of adolescence, in which there had been a marked gouty tendency and a most obstinate lithæmia. There was a distinct family history of gout, and a distinct history of a gouty habit in the individual and in the immediate members of his family.

Dr. B. Sachs said that the reader of the paper had set himself a very serious though interesting problem to solve. Personally he had some doubts regarding the intimate connection between diabetes and the forms of insanity alluded to in the paper. It seemed to him that diabetes was not only a neurosis, but was a neurosis of the second half of life. He questioned, therefore, whether it was entirely correct to make this neurosis responsible for many of the forms of insanity, unless statistical inquiry proved that the parents of the subject afflicted with some form of insanity had been afflicted with the disease before that individual had been born. It would probably not be difficult to show that Bright's disease occurred in a considerable number of the ancestors of a given insane individual, and probably the same could be done regarding cancer and various other maladies. His personal experience showed a very frequent history of diabetes in the families of insane patients, but it had never impressed him that this proportion was greater than in the case of some other serious disease—such for example, as Bright's disease. The occurrence of epilepsy or idiocy in the descendants of those directly afflicted with diabetes before the subject was born was a common experience. He would like to ask the reader of the paper whether the forms of insanity he had observed in the descendants of diabetics were those classed usually as degenerative, or would he include the acute insanities. In studying the statistics given regarding the Semitic race, their greater struggles for existence, greater hardships and peculiar mode of life should be taken into consideration.

Dr. Edward D. Fisher said that in the descriptions of diabetes given outside of the field of mental disease, not much reference was made to insanity, nor was there much reference made to the occurrence of diabetes in the insane. If Clouston referred only to two cases in his large experience, this in itself would indicate that diabetes was an insignificant factor in the etiology of insanity. In some reported cases of diabetes occurring in the insane, it was stated that on the development of the insanity—usually melancholia—the diabetes frequently seemed to cease, and that on recovery or improvement in the mental condition the sugar reappeared in the urine. He could not understand this, and would like *Dr. Spitzka* to shed more light upon it. Unless it could be shown that special forms of insanity followed diabetes, it did not seem fair to argue that insanity in individuals having diabetic parents was the result of the diabetes. We would probably find, in a general way, that diabetes, like intemperance, might be a factor in producing maldeveloped children, but he did not believe in any more specific connection between the two.

Dr. N. E. Brill asked if inquiry had been made into the ancestral condition of the parents. If it could be found that the parents of these diabetics had been insane, the appearance of insanity in the grandchild might represent a psychical atavism, so to speak, and the diabetes in the intermediate parent would simply represent the transmission of this degenerative taint. He thought too much stress had been laid upon diabetes as a neurosis. Although this view had been held very generally in the past, there was now a tendency to return to the chemical theory. In the last two years Italian observers had noted the occurrence of diabetes in connection with disease of the pancreas. He would also like to ask *Dr. Spitzka* if he had excluded syphilis in the parent in the case considered in his paper.

Dr. Thomas E. Satterthwaite said that a little over twelve years ago, in a paper based on a study of forty cases of glycosuria, he had stated that the nervous system must be held responsible for this disease. For the cases in which glycosuria had been produced by puncture of the fourth ventricle, extirpation of the superior cervical ganglion, pressure of tumors and clots on the brain, etc., he had offered, in explanation, the popular theory that it was due to vasomotor paresis of the vessels of the liver. At the same time he had shown that the action on the hepatic vessel might be reflex, and that direct stimulation of the liver and pancreatic disease might give rise to glycosuria. In the light of recent experiments another view might be held—*i. e.* that irritation of the liver caused the discharge of glycogen in that organ. He believed that future experiments would show still other varieties of diabetes. Among the contributing causes found in a list of forty five cases under his observation were mental anxiety in six, injury to the head in three, severe neuralgia in two, sexual abuse in two, overwork in one,

abuse of opium in two, and a diabetic mother in one case. He recalled a single instance in which a diabetic woman under his care had epilepsy and insanity in her children. but he had reason to believe that her diabetes had not developed until after the menopause.

Dr. L. C. Gray said that the great merit of the paper lay in the demonstration of the marked connection between diabetes and insanity, and he was astounded to learn that so many cases could have been seen by one observer. Although it had long been a routine practice with him to have the urine examined, he had very rarely met with such cases. He would like to know whether in the cases reported the sugar had been present in large quantity, and whether it had been present constantly or intermittently.

Dr. Max Einhorn said that he had been surprised to find that von Norden made the statement that in the Berlin clinic, of the 23,000 patients in the clinical wards, from 1890 to 1893, there was 1 diabetic to about 355 patients; while during the same period, of the 2,535 patients in the psychiatric clinic, there was not one diabetic. He was inclined to favor the neurotic theory of diabetes, and the fact that excision of the pancreas caused diabetes did not prove that the disease was not of neurotic origin.

Dr. A. W. Ferris referred to the case of a Hebrew woman, forty-seven years of age, the mother of one child, in whom diabetes had been discovered in 1893. She had been through the usual experience of a diabetic, and for three months had had melancholia with suicidal tendency. For the last two years the only psychical disturbances had been intellectual depression and a weakened judgment, with impaired memory. Her father fell dead suddenly of what was supposed to be heart disease. Her mother died of "softening of the brain," after having been partially paralyzed for some years. Of the patient's three brothers, none married. One of these brothers had convulsions for the first three years of his life, and at seventeen years had acknowledged epilepsy, which continued for ten or twelve years. A son of the patient's sister had epilepsy for some years, and now, at the age of sixteen, has external strabismus and talks like a child of two years. A niece of the patient's father was reported to have recovered from diabetes. The patient's mother's brother also had diabetes for many years. One of his daughters had myxoedema, and one son became insane.

Dr. Spitzka, in closing, said that the elements making up the claim of his paper were these: (1) The coincidence in the clinical form; (2) coincidence in two sets of individuals and independent statistics—the one beginning eighteen years ago, from one point of view, and the other continued since, from a different point of view, and dealing with material derived from two separate sources of information. One represented the statistics of a large asylum, containing all classes of the population; the other represented the experience of a single practitioner. Yet both had led to the same

conclusion regarding the same form of insanity—a distinct and well-marked one, according to most observers—occurring in the same class and under the same circumstances. Of course, this might be a mere coincidence, but the same figures in sex and age relations, were presented. Syphilis had been excluded in all his cases, so far as it was possible to do so. He had always found diabetes to be a more or less neurotic disease, and he did not pretend to distinguish between the different varieties, such as pancreatic diabetes, etc.

RICHMOND ACADEMY OF MEDICINE AND SURGERY.

Your committee appointed April 13, 1897, begs leave to submit the following report upon

"THE PROGRESS OF SERUM-THERAPY."

The first mention of the employment of the idea of serum-therapy is that in the recorded practice of inoculating patients as a prophylactic measure against smallpox, employed at the beginning of the eighteenth century in Turkey. Inoculation gave way before the more desirable method of vaccination. The number of lives which Jenner's discovery has saved is well nigh incalculable. The first mention of the use of serum is to be found among the Germans, who employed the treatment under the name of *Isopathy*, about the middle of the century. To what extent it was used, and with what success it was credited by them, is not definitely stated, but it must have impressed them favorably, for a variety of isopathic preparations made their appearance under such names as "Phthisia, Hydrophobia, Scarlatina," &c.*

DIPHTHERIA.—The history of the development of the antitoxin treatment of diphtheria is so well known, and its acceptance now so universal that it would be useless, even if the limits of this report rendered it possible to go fully into details on these points. Even at the time that your committee was appointed it could be said that a sufficiently extensive trial of the anti-toxin treatment of diphtheria had been made to remove the fears which many had entertained as to its action, and to place the remedy in an assured position as one of inestimable worth.

During the past year statistics from many and varied sources have appeared, all tending still further to increase the confidence of the profession in the remedy, and to demonstrate the saving of life which it has accomplished. Many who were skeptical have been convinced by the unanswerable argument of statistics, whose authenticity could not be questioned, until to-day it may be said that few physicians, indeed, who have given the subject careful consid-

*New York Medical Times, vol. 24. p. 67.

eration do not accord to the remedy even more value than was at first claimed for it by its staunchest advocates.

Only two sets of these statistics will be referred to, not because they are more favorable than others, but on account of the large number of cases recorded in them, and because they represent such diversity in the class of cases treated.

The report of the committee of the American Pediatric Society, presented at its last meeting, includes 1,704 cases of laryngeal diphtheria which occurred in the practice of 422 physicians in the United States and Canada. In this report the following points are among the most prominent: Before the use of antitoxin it was estimated that 90 per cent. of laryngeal diphtheria cases required operation, whereas now, with the use of antitoxin, only 39.21 per cent. require it. The mortality in the whole series of 1,704 cases was 21.12 per cent. (360 deaths). In the non-operated cases the mortality was 17.18 per cent. (178 deaths). The mortality in the operated cases (27.24 per cent.—182 deaths) shows even more remarkable results. Before the use of antitoxin only 27 per cent. *recovered*: now only 27.24 per cent. *die*.

The other report to which reference will be made is the "Second Report of Medical Superintendents upon the Use of Antitoxic Serum in the Treatment of Diphtheria in the Hospitals of the Metropolitan Asylum's Board during the year 1896." (London.) In these hospitals during 1896 antitoxin was used in 71.3 per cent. of all cases of diphtheria, the remedy not being employed in moribund, mild, or doubtful cases. The total death rate during 1896 (under antitoxin) was 20.8 per cent.; that of 1894 (without antitoxin), although then considered remarkably low, was 29.6 per cent. This represented a saving of 365 lives. It is well known, however, that only during the early days of the disease does antitoxin exert its full beneficial effect; and hence, while the above figures show a difference in the total death rate of only 8.8 per cent., the difference in cases treated on the first day was 17.8 per cent.; and the second day, 14.2 per cent.; on the third day, 11.7 per cent.; on the fourth day, 9.1 per cent., and on the fifth day or later, 6.2 per cent. Laryngeal cases were attended with a mortality of 62 per cent. in 1894; 29.6 per cent. in 1896. Operated laryngeal cases had a death rate of 70.4 per cent. in 1894, 41 per cent. in 1896. It is the opinion of the superintendents that there has been no reduction in the frequency of complications of the disease as a result of antitoxin treatment, except in the case of nephritis, which occurs less often. In fact, it would seem as if the other complications occur even more frequently than formerly. This, however, is only apparent, and is due to the closer observations which are now made, and, even more, to the fact that many severe cases, which would have died under other treatment, now recover, and these are naturally more prone to develop complications.

In this report the general results of antitoxin treatment are summed up as follows: 1. Diminution of faucial swelling; 2. Lessening of irritating and offensive discharge from the nose; 3. Limitation of extension of membrane; 4. Earlier separation of exudate; 5. Limitation and earlier separation of membrane in laryngeal cases; 6. Improvement in general condition and aspect of patients; 7. Prolongation of life, in fatal cases, to an extent not obtainable with former methods of treatment.

It has been claimed by those who refuse to recognize the value of diphtheria antitoxin, that the favorable results shown in the statistics of the past few years are due to other factors than the employment of antitoxin. By some it is held that the type of the disease has become milder; others that since the widespread application of bacteriologic diagnosis, cases are now called diphtheria, which were formerly not so classified; or again, that moribund cases and cases treated after the fifth day of the disease are excluded in many of the statistics. The first report to which reference has been made above, answers fully the first objection, since it deals only with laryngeal cases, and laryngeal diphtheria can never be considered mild. In the report of the Metropolitan Asylum's Board Hospitals mild as well as moribund cases were not injected. As regards the influence of bacteriologic diagnosis, it is a fact which no one acquainted with the subject will dispute that the number of cases which would formerly have been considered diphtheria, but which are now excluded from the statistics by bacteriologic investigation, far exceed those in which the reverse is true.

While the above are strong replies to the criticisms of the opponents of antitoxin, we are indebted to Park* for a table of statistics against which none of the usual objections can be urged. This table, compiled from the official records of Berlin, Paris and New York, shows the absolute death rate per 100,000 inhabitants in these cities from diphtheria and croup from 1886 to 1897 inclusive. There is here no room for asserting that the statistics have been twisted to favor any plan of treatment, that any special class of cases has been excluded or included, and yet the reduction in mortality in all three of these cities since the introduction of antitoxin is remarkable and too uniform to be the result of mere coincidence. This table is of such interest that it is here appended:

*Park Wm. H.: Contributions of Bacteriology to Therapeutics. Wesley M. Carpenter Lecture for 1897.

ABSOLUTE DEATH RATE FROM DIPHTHERIA AND CROUP PER 100,000 POPULATION.

Year,	Berlin.	Paris.	New York.
1886	125.7	73.2	187.5
1887	100.7	76.9	206.6
1888	76.1	83.7	167.7
1889	85.6	79.9	146.2
1890	102.0	77.5	110.6
1891	67.5	63.0	118.7
1892	92.9	63.6	123.3
1893	100.8	51.4	145.5
1894	86.7	40.7	158.5
1895	†59.7	17.7	105.2
1896	30.9	17.6	91.3
*1897	26.4	17.2	86.4

*Last quarter of year estimated.

†General use of antitoxin commenced.

As regards actual advances in the antitoxin treatment of diphtheria, the chief of these seems to be the production of more potent and trustworthy serums and the attention to details in its manufacture, whereby its efficacy has been increased and many of its objectionable features diminished. Rashes and joint symptoms following its use are now somewhat less frequent than formerly.

The preparation of dried serum has not yet been brought to a sufficient degree of perfection to supplant the ordinary product, while "we have no more hope than we had five years ago of separating antitoxin completely from the horse serum."*

During the past few months the Health Department of New York city has been testing the comparative frequency of rashes after the use of filtered and unfiltered serums. Your committee is indebted to Dr. Wm. L. Somerset, Resident Physician Willard Parker Hospital, for the following statement, which is an approximate one, of the results obtained: Previous to the employment of the filtered serum, rashes occurred at the Willard Parker Hospital in from 25 to 30 per cent. of all cases; since the use of filtered and unfiltered serum, in parallel cases, the percentage of rashes where filtered serum was injected has been reduced to about 15 per cent. while it has risen to about 40 per cent. where the unfiltered product was employed. The higher percentage of rashes in the latter class of cases than formerly, is due to the fact that the unfiltered serum used in these cases contained the residue from the filtered portion. It would thus appear that the production of rashes is caused largely by some constituent of the serum which is incapable of passing, or passes only in small amounts, through unglazed porcelain.

*Park, loc. cit.

The use of antitoxin as a prophylactic measure has been steadily gaining ground, and with the production of a serum from which all objectionable features have been eliminated, its use in this direction will doubtless become even more popular, though, from the temporary nature of the immunity affected, it must remain a measure to be adopted only in the presence of epidemics or in cases where exposure has undoubtedly occurred.

YELLOW FEVER.—In 1854 and 1855, inoculation, as a preventive measure, was made use of in Havana during an epidemic of yellow fever. In 1887, this idea was again introduced and followed up very thoroughly in Brazil. But in neither instance were the results satisfactory. In 1892, Domingo Freire introduced a diluted virus derived from the micrococcus xanthogenicus, which he held to be the etiological factor in the development of yellow fever. This diluted virus was advocated as a preventative inoculation by Dr. Belinger, of San Francisco, Dr. J. McFadden Gaston, of Atlanta, and others during 1893 and 1894; but the results have been disappointing. About the same time, in 1893, Dr. A. S. Ashmead recommended "Murray's immunizing methods" as follows: Inoculate with the blood serum of a partially immune subject (negro), and inoculate a second time with perfectly immune blood serum of a white subject who has had yellow fever. Before inoculation, however, as frost always modifies the virus, let the infected serum be first exposed to frost. Follow at once with a "second inoculation of immune blood serum." Disappointments likewise followed the use of this method.

In July, 1897, Prof. G. Sanarelli, of the University of Montevideo, isolated and cultivated a bacillus which he considers to be the specific organism of yellow fever. Probably it is the same bacillus as that formerly described by Surgeon General Sternberg. Possibly both may ultimately be proven to be secondary invaders. However, Sanarelli has been occupying himself since last summer in the securing of a protective or curative serum, about which most encouraging reports have been already made. And yet scarcely is the hope born that at length we have a protective or curative agent with which to meet yellow fever before adverse reports are coming in to indicate that we must wait and see.

TUBERCULOSIS.—The medical world was startled in 1890 by the announcement that Kock had discovered a remedial agent for phthisis. This announcement was hailed with joy, and it was immediately put to the clinical test, but its virtues, so ably set forth by its discoverer, soon began to minimize, and finally it fell into disrepute as a curative remedy. Since the introduction of tuberculin, several serums have been brought forward, and have been tried with varying success by many physicians.

Among the most popular of these preparations are the serum of Prof. E. Maragliano, of Genoa, obtained from the dog, the ass, and the serum. When treatment was begun as late as the formation of

cavities in the lungs, he claims a *cure* of 7.76 per cent. In non-febrile tuberculosis, his successes have amounted to nearly 100 per cent. of recoveries. He recommends that 1 c. m. of the serum should be the dose injected subcutaneously every second day. In febrile forms, the dose may be increased for several days—5 to 8 days—to 5 and even 10 c. m. Such are the contradictory reports as regards successful use of Maragliano's serum by different doctors that it is difficult to come to a fixed opinion on the subject.

What has been said in general of Maragliano serum applies in the main to the published results of the use of the antitubercle serum introduced in 1895 by Dr. Paul Paquin, of St. Louis. That it is useful when administered with other remedies is more than probable.

Early in 1896, Koch introduced what he called T. R. Tuberculin, and this was followed by encouraging reports of its use. But it was not long before the process in its manufacture was found to be faulty in that, notwithstanding the centrifugation, it was discovered that in a large number of the preparations on the market tubercle bacilli remained in the fluid. This being recognized as an error of manufacture, it has been withdrawn from market—certainly until the fault of its manufacture can be remedied.

Antiphthisin is a sozalbumin, introduced some years ago by Klebs, which he regards as the germicidal part of tuberculin. Von Ruck "attests its absolute safety, and considers that it has curative properties."

But the early disappointments in practice of the serum treatment of tuberculosis have made the profession skeptical as to the remunerative value of any and all such methods of treatment; and yet it is evident to the non skeptical who reviews the experience of unbiased practitioners that it is probable that whatever may be found curative of tuberculosis, one of the measures to be used will be perfection of some of the antitoxines so called. It is the opinion of many that the scientific worker is getting in the neighborhood of the real remedy, and is probably knocking at a door of the house in which the truth is to be found.

TYPHOID FEVER.—Chantemesse and Widal found, in 1888, that susceptible animals could be rendered immune by inoculating them with a culture of the typhoid organisms which had been rendered sterile by heat.

Following this line of investigation, serum-therapy has been employed in typhoid fever. However, with the most persistent use of this substance, the results of this disease have been unsatisfactory.

SCARLET FEVER.—An antistreptococcic serum has been employed in this affection, and while it does not seem to have any efficacy in the scarlet fever itself, yet, from a certain number of observations made by Roux, it appears to have a favorable influence on the complications due to the streptococcus, and which are so common in this malady.

TYPHUS FEVER.—In a prison at Bougie, from November 25th to December 12th, 40 cases occurred, with two deaths. Serum-therapy was commenced December 12th, the serum being obtained from patients who had recovered. From 2 to 6 c. c. were injected into each of 39 c., and only one died. Legrain noted fall of temperature, improvement in pulse, disappearance of fever, and that severe cases soon became mild in type.

Although this disease is rare, owing to improved hygienic measures, yet, from the favorable report of serum in its treatment, it is to be hoped that the rate of mortality will be kept lowered in those instances where disease gains a foothold.

RABIES.—Tizzoni and Cattani reported that serum of animals, rendered immune to hydrophobia, has the power of conferring immunity and arresting the disease when already developed. So far no trial has been made in man. If successful here, its value will surpass the treatment of Pasteur, in that the latter may produce immunity, but cannot cure the disease if once developed.

LEPROSY.—Carrasquilla treated a number of cases of leprosy with serum, and in fifteen cases of the anæsthetic type secured a remarkable degree of success. Medina, commenting on this treatment, sums up as follows:*

"The sensation is restored more or less rapidly according to the extent and gravity of the lesions of the peripheral nervous system. Distinct patches lose their abnormal color without disappearing entirely. Œdema subsided rapidly in some cases, slowly in others. The skin shrinks and resumes its physiological condition after the absorption of the cedema. The tubercular variety shrinks, breaks down, and disappears by absorption, desquamation, or suppuration, leaving traces of their existence at the affected spots. Ulcers, after having presented copious purulent secretions, rapidly clear off and are covered with healthy skin; scars from former suppurative lepromata fade and tend to assume the same level as the surrounding skin. Ulcerated mucous membranes fade like the skin and recover sensibility, while the tubercles break down. The face loses its leonine appearance. Lastly, the patient recovers his appetite, the ability to sleep, and the mental state improves."

SARCOMA AND CARCINOMA.—Varying success has attended the use of bacterial products in inoperable malignant disease. Coley, who has done a great deal of work in this class of cases, secured greater success with the treatment in sarcoma than in carcinoma. The conclusions of the New York Surgical Society, which may be considered as a conservative survey of the efficacy of this treatment in malignant diseases, are as follows:†

"(1.) The danger to the patient from the treatment is great.

"(2.) The alleged successes are so few and doubtful, the most that can be said for the treatment is that it may offer a slight chance for improvement.

*Report to the National Academy of Medicine of Columbia, at Bogota, 1895.

†Annals of Surgery, July, 1896

"(3.) Valuable time has been lost in operable cases by giving the treatment a trial before operating.

"(4.) The method should be absolutely confined to operable cases."

SYPHILIS.—Richet and Haricourt were the first to try injections of serum in the treatment of syphilis. They report two cases, one resulting in a cure; the other showed marked signs of improvement—the ulcerated surface decreasing four-fifths in size. Pellizzari and Neuman have employed blood in its treatment, but no satisfactory results were obtained.

STREPTOCOCCIC INFECTIONS.—In erysipelas, Marmoreck used the anti-streptococcic serum in 413 cases, in which the mortality was 3.87 per cent, against 5 per cent. prior to the use of serum. In 165 cases of erysipelas alone, the mortality was 1.2 per cent. As a result of the use of the serum, he noticed an improvement in the general condition, fall of temperature and local improvement.

Puerperal fever has been treated by this plan with a certain degree of success. It has not proven as useful in this disease as there was reason to expect at the first mentioning of the subject.

The serum has also been used with success in acute hæmorrhagic septicæmia, erysipelas neonatorum, acute general septic peritonitis, purulent cellulitis of the face, cerebro-spinal meningitis.

PNEUMONIA.—Klemperer, in 1892 and 1893, published his researches as to the treatment of serum therapy in six cases with good results. Mosney, Bonome, Emmerich and Pansini, following up this idea, obtained practically the same results as Klemperer. On the other hand, Hughes and Carter, in 1894, reported the injection of the serum of patients just recovered from pneumonia in ten cases of this disease, and they had no reason to consider the treatment efficacious.

CHOLERA.—Many experiments have been made in cholera, chiefly as inoculations, and these mostly in animals until recently. During an epidemic of this dread malady in Spain, 50 per cent. of those attacked died. After inoculation was used, the rate of mortality was reduced to 25 per cent.

INFLUENZA.—The bacteria of influenza was discovered in 1892. Rabbits were inoculated with cultures, and after they had been proven immune, the blood serum was used on men suffering from influenza with varying success.

The serum treatment has been extended considerably in its scope, so that at the present time few of the more infectious diseases to which mankind is liable, have not been considered by the experimental bacteriologist. In addition to the diseases above referred to, may be mentioned the bubonic plague, anthrax, alcoholism, acute delirious mania, glanders, pleuro-pneumonia, foot and mouth disease, chicken cholera, hog cholera and bites of reptiles, as other diseases in which serum-therapy has been employed.

TETANUS.—Behring and Kitasato were the first to produce in the blood of animals a distinctly potent and valuable antitoxic substance. In 1892, Dr. Rudolf Schwarz reported the first success with tetanus anti-toxin in man. Cases of cure have been reported from time to time which gradually increase the per cent. of recoveries. It may be properly asked why the success with serum in this disease is not so favorable as that in diphtheria—the two antitoxines being “so nearly identical in their efficacy as agents for immunization?” The answer may be found “in the manner” in which “the two infections begin and progress.”† The tetanus affection advances for from five to ten days undetected in the wound, the toxins develop unnoticed, cause their deleterious effect, and only after general poisoning has occurred is the disease detected.

The diphtheria infection starts on the surface, and before its toxins are fully developed and absorbed, it is diagnosticated by the appearance, of its exudate, the husky voice or the nasal obstruction. At this time we could also arrest the tetanus affection. If we allow this time to pass by, then, as in tetanus, after the constitutional poisoning has taken place, the antitoxin is usually of no avail.

An improvement in the form of tetanus antitoxin is the solid variety. It is claimed that this preparation can be kept indefinitely, and is ready for use at any time by simply dissolving it in water.

SERUM THERAPY IN VIRGINIA.—Having briefly reviewed the progress of serum therapy from its incipency up to the present time, the committee thought it advisable to ascertain the extent to which this class of remedies had been employed in our own State. With this object in view, circular letters were sent to the members of the Medical Society of Virginia, and to such other physicians in the State as the committee had reason to believe had employed serum treatment. In this communication information was requested under four headings—diphtheria, tuberculosis, tetanus, and the diseases for which antistreptococcic serum is employed. Under the respective headings replies were sought upon the leading points of interest likely to arise in the course of the disease under consideration.

In response to about one thousand of the above letters of inquiry, the committee received reports from seventy-nine physicians. Thirty-five of these state that they have not employed serum in their practice, giving as their reason, in all but fourteen instances, lack of opportunity to test the same. The reason of non-employment of the remedy by these fourteen is stated to be disbelief either in the efficacy of the treatment or in the theory upon which the application is founded.

Of the forty-four who employed serum, thirty-one used it in diphtheria alone; six in tuberculosis; one in tetanus; four in diphtheria and tuberculosis, and one in diphtheria and tetanus, and one in diphtheria and puerperal sepsis. The total

†The Wesley M. Carpenter Lecture for 1897. By Wm. H. Park, M. D.

number of cases reported was 151, there being 100 cases of diphtheria, 48 of tuberculosis, 2 of tetanus and 1 of puerperal sepsis.

The committee feels confident that these figures do not represent the entire number of cases in which antitoxin treatment has been employed in Virginia. Although every effort was made to secure reports from all physicians in the state who had employed serum treatment, many who have used the remedy failed to respond to the letters of inquiry, and in other instances the reports were received too late for tabulation.

The reports received on diphtheria embrace 100 cases occurring in the practice of thirty-seven physicians. The following tables, compiled from these reports, show the results obtained:

TABLE II—Classification of Cases.

Laryngeal	14
Laryngeal and tonsilar	4
Laryngeal and pharyngeal	2
Laryngeal, tonsilar and pharyngeal	3
Laryngeal and nasal	1
Tonsilar	12
Pharyngeal	7
Nasal	1
Tonsilar and pharyngeal	14
Tonsilar and nasal	1
Tonsilar, pharyngeal and nasal	3
Pharyngeal and nasal	1
Tonsilar, pharyngeal, nasal, buccal and vaginal	1
General	3
Not stated	33
Total, ...	100

TABLE III.—Type of Disease.

Type.	Cases	Cured.	Died	Per Cent. of Deaths
Laryngeal	24	21	*3	12.50
Non-laryngeal	43	40	†3	6.97
Not stated	33	31	2	6.06
Total	100	92	8	8.00

*One death from broncho-pneumonia 21 days after disappearance of membrane.

†One case moribund when first injected.

TABLE IV.—Severity of Disease.

Type	Cases	Cured	Died	Per cent. of Deaths
Mild.....	14	13	*1	7.14
Severe.....	39	37	2	5.13
Malignant.....	20	17	3	15.00
Not stated.....	27	25	2	7.41
Total.....	100	92	8	8.00

*A case of tonsilar and pharyngeal diphtheria in a child of 5 years; 1,500 units injected on second day of illness; 1,500 units eight hours later. Died suddenly four hours after second injection.

TABLE V.—Bacteriologic Examination.

	Cases	Cured	Died	Per cent. Died
Made; result positive.....	23	21	2	8.70
“ “ negative.....	*1	1	0	0.00
Not made.....	39	35	4	10.25
Not stated.....	37	35	2	5.40
Total.....	100	92	8	8.00

*Laryngeal.

TABLE VI.—Day of Injection.

Injected on	Cases	Cured	Died	Per cent. of Deaths
First day of illness.....	3	3	..	
Second day of illness.....	15	13	*2	13.33
Third day of illness.....	17	15	2	11.76
Fourth day of illness.....	9	9	..	
Fifth day of illness.....	5	5	..	
After five days.....	7	5	2	28.57
Not stated.....	44	42	2	4.54
Total.....	100	92	8	8.00

TABLE VII.—Serum Used.

Name of Maker	Cases	Cured	Died	Per cent. of Deaths
Behring	26	24	2	7.69
Roux	1	1	..	
Parke, Davis & Co.	29	27	2	6.90
H. K. Mulford Co.	4	4	..	
United States Marine Hospital.....	6	5	1	16.67
Not stated.....	34	31	3	8.82
Total	100	92	8	8.00

TABLE VIII.—Initial Dose.

Number of Units	Cases	Cured	Died	Per cent. of Deaths
Under 500.....	1	1	..	
500-1,000.....	9	8	1	11.11
1,000-1,500	15	14	1	6.67
1,500-2,000	16	15	1	6.25
Over 2,000.....	2	2	..	
Not stated	57	52	5	8.77
Total	100	92	8	8.00

TABLE IX.—Repetition of Injection.

Was Dose Repeated ?	Cases	Cured	Died	Per Cent. of Deaths
Repeated.....	3	2	1	33.33
No. Units.....	500-1000.....	9	9	..
	1000-1500.....	4	2	2
	1500-2000.....	*1	1	..
	Over 2000.....	†37	33	4
.....	Not stated.....	25	25	..
Not Repeated.....	25	25	..	
Not Stated.....	21	20	1	4.76
Total.....	100	92	8	8.00

*Repeated three times, 1,000 units at each injection.

†One case repeated twice.

Average time of improvement after injection of antitoxin, in 47 cases stated, 12.1 hours.

Average time of disappearance of membrane, in 50 cases stated, 7.1 days.

Rashes occurred as a result of the antitoxin in eight cases, seven urticarial and one macular. Joint affections occurred in two cases. The less frequent occurrence of these symptoms after the administration of antitoxin shows an improvement which may fairly be attributed to the smaller amount of serum which it is necessary to inject since higher potencies have come into general use; although the possibility of the occurrence of rashes being overlooked in private practice should not be forgotten.

Of the 24 laryngeal cases reported, 3 were operated (tracheotomy) with 2 recoveries and 1 death. Unfortunately, dosage was not stated in any of the operated cases.

Complications.—Albuminuria occurred in 7 cases, one of which seemed to be favorably influenced by the antitoxin. In one case, with complications of broncho-pneumonia, acute nephritis and paralysis, these complications improved after second injection.

Of the 100 cases reported, all except one were in white subjects.

The total number of cases reported is rather small to permit of deductions in certain directions, and this fact is also responsible for the appearance of certain discrepancies in the above tables. Thus, the mortality in cases reported as mild (7.14 per cent.) is greater than that in cases reported as severe (5.13 per cent.). There was only one death among the mild cases, the cause of which was not clear to the attending physician, but this one death has the effect of causing in the table the curious result noted.

DEATHS.—Of the fatal cases, one was moribund when injected. One died of broncho-pneumonia, on the thirty-third day of illness—three weeks after complete disappearance of the membrane. The third fatal case, one of laryngeal diphtheria, was not seen “until a few hours before stenosis required operation” (tracheotomy). In this case there was temporary improvement after the first injection. The fourth fatal case, one of laryngeal and nasal diphtheria in a colored infant 10 months of age, was brought from a distance to the office of the physician who administered the serum. Two injections, 500 units each, of antitoxin, were given, resulting in some improvement. The child died on the day following the second injection, under circumstances not known to the physician reporting the case. In three of the fatal cases no data whatsoever were given. In the eighth fatal case attributed to heart failure, the attending physician, in making his report, states, “I think the serum must have had something to do with the cardiac failure.”

The above report, showing a mortality of only 8 cases in 100 in one of the most dreaded and hitherto fatal of the acute infectious diseases, is in keeping with the universally favorable statistics which have, from time to time, been tabulated and published from other sources, both in hospital and private practice. Although, from the number of reports received, it will be seen that Virginia physicians have followed a conservative course in adopting this method of treat-

ment, yet the popularity of the remedy is steadily and rapidly increasing.

While appreciating the valuable assistance rendered the committee in this, the first attempt in the State, to collect data relating to any special line of treatment, it was to be expected that the resulting report could not be wholly satisfactory, owing to the incomplete nature of many of the individual reports received. The difficulty encountered by the committee from this source emphasizes the advisability of physicians keeping a careful and accurate record of important cases, especially those treated by methods whose full value is still under investigation.

A glance at the above tables will show that upon even the most important points the information was, in many instances, deficient.

Thus, the age of patient was not stated in 34 cases; type of disease, in 33 cases; severity of disease, in 27 cases; day of injection, in 44 cases, and dose of antitoxin, in 57 cases—yet, these are the five most important and vital factors in the compilation of statistics relating to diphtheria as treated by antitoxin.

In only 24 cases was a bacteriologic examination made. The importance of having bacteriologic confirmation of the clinical diagnosis is, apparently, not yet as generally appreciated as it should be by the profession at large. In those cases where the diagnosis of diphtheria is obvious from clinical evidence alone, antitoxin should be administered at once without waiting for a bacteriologic examination. In doubtful cases, where the physician, though not positive, is inclined to regard the case as diphtheria, the same course should be adopted, especially if the case seems urgent. In that class of still more doubtful cases, where the ablest clinician is unable to arrive at even an approximate diagnosis, bacteriologic investigation is imperative, and should not be neglected if it can possibly be secured.

In all the above instances, however, even where antitoxin has been administered at once, the clinical diagnosis should be confirmed bacteriologically wherever practicable.

From a critical review of the reports received the fact has impressed itself upon the committee that a certain degree of timidity still exists with many physicians in the employment of the remedy. The dose given in many instances is still too small, and the necessity of as early administration as possible seems to be not yet fully appreciated. With increased experience, and a more thorough understanding of the indications for its employment in the proper dosage, there is reason to hope that its usefulness will be still further extended.

TUBERCULOSIS.—Your committee regrets that the information furnished upon the serum treatment of this disease in our state is so meagre and incomplete that accurate deductions on the subject cannot be made. Of the 48 cases reported, 5 were cured, 13 improved, 13 unimproved, 15 died, and 2 not stated.

Concerning the five cases reported as recovered, no information

was given as to stage of disease when treatment was begun; the diagnosis of cure was made upon the improvement of physical signs and the disappearance of tubercle bacilli from the sputum; two of these cases are stated to be in robust health and free from all signs of tuberculous taint.

Of the 13 cases improved, one was in the first stages of the disease, and under the treatment all symptoms improved, but the bacilli, though diminished in number, still persisted. Concerning the other 12 cases, no data were given.

Of the 13 unimproved cases—in one, a case in the second stage of the disease, treatment had to be discontinued on account of unfavorable action of the serum. Concerning the other 12 unimproved cases, no data were given.

Of the 15 cases terminating in death, one was in the first stage when treatment was begun; three in the second stage; five in the third stage and six not stated.

In the majority of cases in which information upon the subject was furnished, untoward symptoms followed the injections and were apparently due to the serum.

In six cases, rashes of an internal, macular or erythematous character were noted; in three cases there were joint symptoms, and in three cases alarming attacks of general numbness, apnoea, syncope, or collapse, followed the injections.

From the information furnished in the reports received, it appears that serum-therapy does not, at the present time, offer any advantage over other methods of treatment in tuberculosis. Only one physician states that "serum-therapy is a great help to creosote, strychnia, etc., in the treatment of tuberculosis."

TETANUS.—Reports of only two cases of the employment of serum in this affection were received—one mild, the other severe—both terminating fatally.

PUERPERAL SEPSIS.—The only instance reported of the employment of antistreptococcic serum was in a case of puerperal sepsis, following delivery by a colored midwife. The disease developed six days after delivery and when treatment was begun—three days later—patient had a temperature of 103° Fahr., pulse 148. Improvement began sixteen hours after injection, and was manifested by a fall in temperature of 3°. In addition to the serum, the usual local treatment of curettage, douches, etc., was employed.

CONCLUSIONS.—Antitoxin is the most valuable remedy yet devised in the treatment of diphtheria.

Its use is especially valuable in laryngeal cases.

It should be employed at the earliest possible moment after a diagnosis is made.

The initial dose should be (according to the type and severity of the case) from 1,000 to 3,000 units of a concentrated serum, and should be repeated according to indications.

Local and other general treatment should not be neglected because antitoxin is used.

As a prophylactic agent its value is unquestioned.

From the information furnished in the reports received, it appears that serum does not, at the present time, offer any advantage over other methods of treatment in tuberculosis.

The number of reported cases of tetanus and puerperal sepsis are too few to justify any conclusions.

ARTHUR JORDAN, M. D., CHAIRMAN,
LONDON B. EDWARDS, M. D.,
E. C. LEVY, M. D.

The committee desire to extend to the following members of the profession their thanks for the report of cases and information :

Baird, J. W., Carsley, Va.,
Barham, S. B., Spottsville, Va.,
Bramblitt, W. H., Pulaski, Va.,
Corrie, Geo., Blossom Hill, Va.,
Crawford, Joel, Yale, Va.,
Ewell, Jesse, Ruckersville, Va.,
Harker, F. S., Richmond, Va.,
Harrison, Edmund, Richmond, Va.,
Henley, Leonard, Williamsburg, Va.,
Kerr, A. F., Millboro, Va.,
Peek, Jesse H., Hampton, Va.,
Scott, Jno. W., Gordonsville, Va.,
Simmons, John W., Floyd, Va.,
Stoakley, Wm. S., Millboro Springs, Va.,
Taylor, T. J., Walthall's Store, Va.,
Wallace, J. W., Covington, Va.

NECROLOGY.

Dr. Theophilus Parvin, the eminent obstetrician and gynæcologist, died at his home in Philadelphia, January 29, of cardiac asthma and a complication of other diseases. Dr. Parvin was born in Buenos Ayres, Argentine Republic, January 9th, 1829. His father was a missionary to that country, and upon his death the seven year old Theophilus was sent to Philadelphia to be educated. In 1843 he entered the University of Indiana, where he was graduated in 1847. He then studied medicine in the University of Pennsylvania, graduating in 1852. He became soon thereafter surgeon to the ship *Tona-wanda*, one of the famous sailing packets of the Hope Line, which plied between Philadelphia and Liverpool. After serving thus for two years he went to Indianapolis, Ind., and engaged in private practice in that city. One year later he accepted the chair of materia medica in the Ohio State Medical College, at Cincinnati. Subsequently he was chosen professor of obstetrics by the Faculty of the

University of Louisville, a position which he resigned to go to Indianapolis, where he helped to establish the Indianapolis Medical College. In 1883 he was called to the chair of obstetrics in Jefferson College, a position which he held at the time of his death.

Dr. Parvin was one of three American physicians who have been made honorary members of the Obstetrical Society of Berlin. He was also an honorary member of the Obstetrical and Gynæcological Society of Edinburg. He was a delegate to the International Medical Congress, which met in Berlin in 1890, and last summer he was a delegate to a similar convention which met in Moscow.

Dr. Parvin was formerly president of the following medical and scientific associations: State Medical Society of Indiana, American Medical Journalists' Association, Philadelphia Obstetrical Society, American Academy of Medicine, and American Gynæcological Society. He was elected one of the honorary presidents of the obstetric section of the Berlin International Congress and of the Periodic International Congress of Gynæcology and Obstetrics in Brussels. He was also an honorary member of the Washington Obstetrical and Gynæcological Society of the District of Columbia, as well as a member of the College of Physicians and the Philosophical Society.

Dr. Parvin was a descendant of Cæsar Rodney, one of the signers of the Declaration of Independence. His grandfather was Cæsar Augustus Rodney, who was Attorney General under Presidents Jefferson and Madison. The Rodneys of the Revolutionary period claimed kinship with Lord Rodney, who enjoyed the distinction of being the man with whom the idea of clothing servants in liveries originated.

The writer was an eager listener to Dr. Parvin's words of wisdom when he was professor of obstetrics in the Faculty of the University of Louisville. He was like many truly great men, modest and retiring and very amiable in his actions and speech, and was a gentleman to the manor born, polished and chaste in his language and mannerism.

It is allotted all men once to die. Atropos with her fatal shears has severed the slender thread that joins the present to the everlasting and our teacher and collaborator is no more. "The good that men do live after them," and "on fame's eternal camping ground his silent tent is spread, and glory guards with solemn round the bivouac of the dead."

Dr. Montague L. Boyd died at his home in this city on February 9th of septicæmia and complications. On December 10th, while performing an operation, the Doctor accidentally received a needle wound in the palm of the hand which was the focus of a septic process.

Dr. Boyd was born in Barnwell county, South Carolina, on June 6th, 1850, and was graduated from the University of Georgia. He obtained his medical degree from the Augusta Medical College and afterwards located in Bulloch county, where he practiced his profes-

sion for twelve years. In 1885 he came to Savannah and in a few years built up a large and lucrative practice. He was President of the Georgia Medical Society for several years, and was one of the staff of the Savannah Hospital. At the time of his death he was librarian of the Georgia Medical Society. By his death Savannah has lost one of her foremost physicians. He was a collaborator to this journal and we deeply regret the unfortunate and untimely termination of his successful career.

PROGRESS

—OF—

MEDICAL SCIENCE.

MEDICINE.

COLD IN THE ÆTIOLOGY OF DISEASES.—Chelmonski, in the *Deutsches Archiv für klinische Medicin*, 1897, page 140, reaches the following conclusions:

1. Taking cold, in the ordinary acceptation of the term, does not exist.
2. The ætiological rôle of cold is very subordinate; in inflammatory affections it does not figure, except as a predisposing cause.
3. Chilling is dependent upon the action of thermic agents that are ordinarily difficult to avoid.
4. The mode of reaction of the skin against the thermic excitation produced indicates whether the individual may, in certain conditions, contract a cold.
5. The degree of tendency to cold is not a constant property of the individual.
6. Old persons, those attacked with intermittent fever, and individuals suffering from renal affections seem to be more subject to taking cold.
7. There does not exist any relation between the tendency to colds, on the one hand, and the condition of nutrition and the thermic sensibility on the other.
8. Individuals may be protected from diseases caused by cold by developing, with appropriate means, the power of reaction against the thermic influences.

APHASIA.—The object of treatment is to restore the conduction of impulses along the usual paths or to open up new paths. In amnesic aphasia, endeavor to strengthen the defective recollection of words. Learn the words by heart, and then adopt short reading exercises. The exercises should be performed in front of a mirror, so as to enable one to recall the memory of the necessary movements. In motor aphasia other parts of the brain may take on function. Single sounds, then syllables, and then words, are taught. Along with the articulation exercises, writing exercises with the left hand should be performed. Teach the patient to form words from printed letters. Sensory aphasia is far more difficult to teach. First attempts are

made by means of written language. Develop lip reading, combining with it reading, writing and other exercises. These cases are often complicated with a combination of different forms of aphasia. Much patience is required. Results so far encourage further efforts.—Karl Bok, *Festschr. des Stuttgart, aerztl. Vereins*, 1897.

THE ACTION OF VENESECTION—Dr. Albert Robin, the savant professeur at the Hospital de la Pitié, has just given us the practical results of his study in bleeding, which throw a new light upon a time-honored therapeutic procedure. The conclusions he reaches are these: "Beside the depletive action of bleeding already known, there is another not sufficiently put in relief, namely, that which favors oxidation, thanks to the superactivity that it gives to nutrition."

Venesections are therefore a powerful agent to employ against diseases accompanied by decline of the nutrition or slackening of the oxidations, and not as a means in a given disease or a particular morbid entity. Bleeding has consequently, in Dr. Robin's opinion, a double action—mechanical and chemical. The diseases in which he has recently bled were cerebral hemorrhage with ventricular inundation, acute nephritis with uræmic respiration, saturnine Bright's disease with epileptiform crises and enormous dyspnoea, cardiac asystolia with cyanosis, uræmic coma with left hemiplegia, uræmic dyspnoea with hydrothorax, asystolic aortic insufficiency and pulmonary congestion, arterio-sclerosis with mitral lesion; as well as others with oedema, anasarca, and dyspnoea. The quantity of blood taken varied from one hundred and fifty to two hundred and fifty and three hundred grams—in some instances with rapid relief. Of fourteen cases treated by bleeding, ten gave good results, and in four the treatment was not successful. These clinical examples confirm what has been ascertained by experimentation. It is true, however, that bleeding has been abused; but it should not on that account be made to disappear from therapeutics altogether.

Phlebotomy is advocated by Lépine and Bouchard in uræmic intoxication. They attribute that complication to the potassium salts contained in the blood. It is not so much the quantity of potassium salts taken away by bleeding as the oxidation that follows, that is efficacious.—*Gazette Médical de Liège*.

HEMORRHAGE FROM THE NORMAL KIDNEY.—Dr. G. Kemperer (*Deutsche med. Wochenschrift*, 1897, Nos. 9 and 10,) says that it is shown by clinical observation and deduction that hemorrhages may occur from an otherwise normal kidney as a result of or under nervous influences (as in hæmoptysis or hæmatemesis); also that experimentally, irritation of the nerves in rabbits has several times resulted in the production of hemorrhage from a healthy kidney. There are many records of cases in which on account of hemorrhage a kidney has been removed by the surgeon and the organ found not to be diseased. The author explains these cases as being the result of a vaso-constrictor paralysis. Six cases that came under his own observa-

tion he classifies as follows: 1. Two cases, hemorrhages of but short duration, resulting from overexertion (bicycle exercise); prognosis very good. 2. Two cases of prolonged hæmaturia in hæmophilic subjects; the diagnosis was based on the family history and the fact that the patient had previous to this had other hemorrhages. In such cases all operative interference, even cystoscopy, is contraindicated. 3. Two cases of prolonged angio-neurotic hæmaturia; thus diagnosticated because the bloody urine was a simple mixture of blood and urine, and did not show the presence of any other pathological elements, while palpation showed no enlargement of the kidney. Treatment consists of rest in bed, milk diet, suggestion, the application of hydrotherapy and perhaps electricity.

THE PROPHYLACTIC VALUE OF SWEATS.—Ziegelroth, at a recent meeting of the Berliner med. Gessellschaft, spoke of the prophylactic value of periodic sweats. Recently, numerous investigations have proved that sweat contains pathogenic microbes. The speaker himself, by a comparison of the bacteriologic condition of water, before and after a patient had bathed in it, found that the water contained three times as many microbes after a sweat bath as after an ordinary bath. The advantages of such a bath before an operation are therefore plain, and serve an even greater purpose in stimulating cellular oxidation. Such baths are contraindicated in diseases of the heart and circulatory apparatus. They act as a specific in rheumatism, and while they may increase the symptoms of an attack of gout they improve the general condition of the patient. The specific gravity of the blood is the same before and after a bath, so that the blood is not changed by it. Two points should be carefully observed: first, the duration of the bath should not exceed fifteen to thirty minutes, and, second, care should be taken at once to replace the fluid which has been lost by the sweating by copious draughts of water.

THE DIGESTION OF STARCH IN THE STOMACH.—Dr. A. L. Benedict, in a paper on "Some Physiological and Anatomical Questions Regarding the Stomach" (Medicine, Feb., '98), says:

There are some chemical problems in connection with gastric digestion about which dense ignorance prevails, or, worse yet, we are even ignorant of our ignorance. Many very sensible physicians are ordering all sorts of digestants of starch, on the hypothesis that there is a fault of amylaceous digestion in the stomach. Normally, the only digestion of starch that takes place in the stomach is a very incomplete process, due to the action of ptyalin. It would be a good plan for the prescribers of diastase to demonstrate a failure of ptyalin in the saliva before they administer the artificial substitute. Personally, I should be very grateful to any one who would find such a failure, as it is something for which I have made a long search without success. Many misleading notions have become current concerning starch digestion, and we must remember: 1, that only cooked starch is digested in the stomach; 2, that it is digested only into

maltose, not into glucose; 3, that with even careful mastication of a light test-meal, only the dissolved starch is fully changed to maltose within an hour or a little less; 4, that after ordinary mixed meals the amount of starch digestion that takes place in the stomach is relatively insignificant; 5, that absolute lack of starch digestion in the stomach would be a trivial matter, providing abnormal fermentation of carbohydrates were prevented, as it may be by administering hydrochloric acid or other antiseptics; 6, that it is only in cases in which superalimentation is plainly indicated that diastase is needed. There is one puzzle about which I have vainly sought the information of various physiological chemists: Where is the maltose, which is certainly formed in and absorbed from the stomach, changed into glucose, which is the only sugar found in the general circulation?

A FORM OF MULTIPLE NEURITIS PREVALENT IN THE WEST INDIES.—In the November number of the Practitioner Dr. Henry Strachan describes in detail the most important symptoms of this disease, and discusses the probable origin of the poison which so severely attacks the peripheral nerves as follows: 1. *The inflammation of the nerves of the extremities, with the trophic changes resulting.* The first nerve attacked in the majority of cases is the ulnar. It becomes very tender on pressure, and may feel slightly enlarged at the elbow. The other main nerves in the extremities are attacked almost immediately after, and their terminal distribution (in the hand) can be mapped out by feeling (in the negro) the tiny herpetic vesicles which form and rarely coalesce into large bullæ; they soon dry and are then, in the black skin, easily seen, as each becomes a center for desquamation. This desquamation, which is fine and branny, involves the whole of the palm, which becomes more and more deeply pigmented as the disease progresses. Should bullæ form and be neglected, small ulcers may result, but this is apparently rare. In the feet the thick epidermis of the soles of such patients as walk barefoot will come off in large flakes, and the soles will also become pigmented.

Sensation is never completely abolished; it may become blunted, and impulses may be delayed in transit and a very delicate touch not be felt, but this is in very advanced cases. Usually slight continued pressure on the nerve trunk will, however, cause more or less anæsthesia in the extremity, with "tingling" and "numbness" in the parts supplied. It is this "numbness and tingling," or "foot going to sleep," or "crampiness," which the patient first notices when he lies or sits in one position for a short time, and if he is of a superior grade of intelligence it leads him to seek advice; if he is not, or is careless, it is the gradually increasing impairment of vision which brings him to the doctor.

2. *The effect of the neuritis on the nerves of special sense, and its results.* The optic nerve affection is most frequently retrobulbar. Little is to be seen on ophthalmoscopic examination but some degree of hyperæmia of the disc and retina, but the acuteness of vision is

severely affected, and there may be well-marked scotoma with micropsia. In one case, the author states, there was paralysis of the external rectus in each orbit, and in several cases he has seen the cornea involved in the trophic changes.

Recovery of sight is the rule; the scotoma grows smaller and finally disappears, and the micropsia passes away. It is noteworthy, says Dr. Strachan, that in some cases where the scotoma has been very marked there has been, on recurrence of the malady, or even when a patient is "run down" from overwork or fatigue, a slight return of the "spot," generally smaller, and not lasting so long a time as on the first attack, but in the same region; from which Dr. Strachan thinks the inference may be drawn that restoration of vision in the disturbed end-organs of the displaced fibrils in the optic nerve trunk may occur long before the displacing inflammatory material has been completely absorbed.

When there has been no scotoma, he says, the acuteness of vision for form gradually grows stronger until the power of sight normal to the patient is restored; though it will generally be found that a latent error of refraction, which was unnoticed by the patient before the attack, will now call for correction.

The author says he has not seen optic atrophy result from this form of neuritis.

The deafness presents no peculiar features, except its sudden onset and rapid increase in intensity. It is not present in a fairly large percentage of cases.

3. *Monoplegias.* These are not common, the most frequent being facial palsy. In one case there was double facial palsy; in one double palsy of external rectus. In one case, where the right brachial plexus was decidedly attacked, there was paresis of the right upper limb, which was only overcome after many months of daily treatment, local and general.

4. In a very grave case, with loss of power in the chest muscles, and when the innervation of the diaphragm and of the heart is seriously involved, the effect on respiration and on the heart's action is painful to witness, says Dr. Strachan, and leads to a fatal termination. Speech becomes difficult, the voice is high-pitched and whining, and often a word or two may be sounded on the inspitatory current of air.

5. *Mental condition.* Only in the gravest cases, when the patient is a mere helpless, wasted living thing, passing his excreta almost unconsciously, there may be delusions; and if he is not so far advanced as this, some feeble violence. Such cases, however, the author has seen only two or three times. Possibly, he says, they may be found in asylums.

6. *The condition of the muco-cutaneous orifices.* Redness and irritation of the eyelids and lips are often the first external signs noticed. It soon passes into a slight eczematous condition, especially at the corners of the mouth and round the margin of the nostrils,

with fine branny desquamation. A similar condition of the mucocutaneous line of the prepuce is not uncommon. More rarely there is a similar condition of the vulva and anus. The lips and the inside of the mouth are hyperæmic, and there may be much loss of surface epithelium on the tongue.

7. The general hyperæmia due to dilated arterioles is well seen in early cases in the conjunctivæ, the palms of the hands, the soles of the feet, and the mouth, and the resulting heat and tingling are bitterly complained of by the patient. These parts, which are normally the least pigmented external portions of the negroes, become deeply pigmented as the disease progresses, and remain so after it has passed away. Of course the whole skin (as well as other organs, to be mentioned later,) may become more deeply pigmented, but the change is most striking to the observer in the regions which are normally fairer than the rest. Then the color may vary from brown to intense black.

8. *Reflexes, etc.* An examination of the reflexes, superficial and deep, does not bring out any point peculiar to this form of neuritis as compared with others. The gait in walking might be called typically ataxic, but it is only when the muscles of the lower limbs are much wasted that the patient can not stand upright alone, with closed eyes, or turn sharply in his walk, or touch any given spot on his head or body with eyes closed—in short, co-ordination of his muscle actions appears to be good in proportion to the degree of persection of muscle nutrition, the action of the muscles being short and jerky when wasting is present and the case an advanced one, any failure to carry out a desired action being the result of want of strength in the muscle itself and not of loss of central co-ordinating power.

9. The sexual functions seem to be affected only when widespread impairment of the muscular action renders all movements difficult, or when the general condition of the patient has arrived at a state which causes him anxiety and distress.

10. Dr. Strachan states that he has seen very few *post-mortem examinations* of cases in which patients have died of this disease. The most noteworthy feature was pigmentation of the brain, spinal cord, and large nerve trunks. The liver and spleen were such as are usually found in cases of malarial poisoning.

11. The disease attacks both sexes, at any age, but it is most common in youths and in adults. It appears to prevail most in districts on the seacoast and low-lying inland regions, but on this point he says he has no certain information to offer, as the majority of patients treated in the Public Hospital, Kingston, belong to that city and its immediate neighborhood.

12. *Treatment.* The treatment adopted in the Public Hospital and found to be of most service has been, during the early and acute stages, by rest in bed, nourishing food, gradually increasing in quantity and variety, and the internal administration of quinine and

strychnine for a considerable period of time in moderate doses, frequently repeated, and often combined with small doses of iodide of potassium. The quinine has been given with the object of combating the malaria believed to be present, and the other drugs have been used with the view of stimulating nerve nutrition and absorption of inflammatory material in the affected nerves.

Massage and electrical stimulation are resorted to for wasted muscles, and active and passive movements of the extremities.

Complete change to a temperate or, if the patient can stand it, a cold climate is apparently one of the most powerful agents in the restoration of health, for continued residence in the patient's usual environment, though it may not prevent recovery, certainly retards it, and occasional recurrences of the malady may result.

13. As to the *poison* which, circulating in the blood of the affected person, causes this form of multiple neuritis, the author states that he has been led to think that it is the poison of malaria.

The fact that the disease attacks those who have resided in malarial regions, or have suffered from the milder and more chronic form of malarial poisoning, while persons who live always in non-malarious regions and have not contracted malaria appear to be rarely attacked, if ever; the fact that quinine is of value in the disease; the striking and rapid recovery when it is possible to give a patient complete change to a cold or temperate or non-malarious region; and the remarkable pigmentation of various organs, so suggestive of malaria, seem to the author to point to the possibility, if not probability, that the poison generated by malaria parasites may, when repeated from time to time and not eliminated promptly, cause this form of multiple neuritis.

A CASE OF LEVANT FEVER.—In the January number of the American Journal of the Medical Sciences Dr. A. Alexander Smith relates the following case, which, he says, is the first case of Levant fever, so far as he has been able to ascertain, reported in this country: The patient was a married woman, thirty-four years old, who came under the author's observation on January 13, 1897. She had lived in the United States until 1885, when she went to Syria. There was no history of hereditary taint in the family of either of her parents. The patient had always enjoyed good health until the autumn of 1888, when she was compelled to leave Aleppo, where she had been for six months, on account of recurring attacks of intermittent fever. These attacks began with slight chilliness, the fever following being continued and lasting three or four days. The attacks came regularly once in two weeks. The last attack occurred in July, 1889, while she was traveling on the Cilician plain from Tarsus to Aintab. It was the most severe of all. During these attacks the blood was not examined. She had lived, before her marriage, in a malarious region in southern Iowa, but had never had any malarial manifestations before.

In the autumn of 1889 she moved to Beirut, Syria, where she was apparently perfectly healthy until the autumn of 1895. In the summer of that year she visited America, and became much run down while staying with her parents in southern Iowa. Upon returning to Beirut she had an unusually severe attack of typhoid fever, the fever lasting more than six weeks, and with hæmorrhages from the intestine in the fourth and fifth weeks. After recovering from the typhoid fever she regained her usual flesh and strength very rapidly, and was apparently in her ordinary health until July 4th following. On that evening she sat out rather late at a garden party. That night she began to have fever. It was of a remittent type, and lasted four weeks. There was no diarrhœa, no hæmorrhage from the nose or intestine, no eruption, and no cough.

Quinine was given in twenty-grain doses in the mornings, when the temperature was the lowest, the bowels having been previously cleared out, but with apparently no beneficial effect. At the end of four weeks the fever disappeared for three days, and then began again, but with greater severity, the morning temperature averaging 102.5° F., and the evening temperature 104° F. This second attack lasted also about four weeks. During the whole of the second attack she was kept on milk and Vichy. There was no delirium, no epistaxis, no eruption, no enlargement of the spleen, and no diarrhœa. After this attack she remained free from fever about three weeks, and then went up to a village on the Ante-Lebanon range, about six thousand feet above sea level. Here the fever again returned, early in October, 1896, and was persistent up to January, 1897. In December the fever began to change its character (while she was on board a steamer leaving Beirut, and there was an intermission each day instead of a remission. She also began to have a slight chill each day (sometimes a severe one), and almost always at about the same hour. While in Switzerland, in December, she was given large doses of quinine, as much as ninety grains a day, but without benefit. Twenty grains a day by subcutaneous injection failed to give more than temporary relief. The voyage across the Atlantic, early in January, 1897, gave much benefit, and she has continued to improve daily since her arrival in America. The attack of fever at the present time lasts only a few hours, beginning about 2 P. M. and passing off about 6 P. M.

Since coming to New York she has taken quinine on several occasions on going to bed, and with apparent good results. Her menstruation during all these attacks has been fairly regular. Since October she has had almost constantly severe night sweats. These were most severe in Montreaux, Switzerland, in December, 1896. They were, at times, so severe that she was obliged to change her clothing as often as three times during the night. During all these attacks she had a fairly good appetite, and seemed to digest her food with but little distress. When she was put on a pure milk diet, or milk

and Vichy, her fever was not affected, and she lost flesh and strength more rapidly than when she was on a more liberal diet.

The author states that the foregoing history was furnished by the patient's husband, a physician, who has been practicing in Beirut, Syria, for several years. He stated that his wife's case was similar to others he had seen, and said the disease was known there as Levant fever.

Dr. Smith states that when he first saw the patient a careful examination failed to reveal evidence of lesion of any kind anywhere in the body. She has been seen repeatedly since that time up to the latter part of April, and has on each occasion shown elevations of temperature at some time in the day, usually in the afternoon up to early evening. The daily variations have differed somewhat. At first they were about 2° , and in the month of February they continued about the same; but in March, for a period of six days, the diurnal variations were 3° . In April a careful record of the temperature was kept for ten days at a time, at two different periods, and the variations were sometimes as much as 4° F. When they were as great as this there would often be a subnormal temperature in the morning. Since the latter part of January, 1897, she has been able to go about the city, and even make short trips out of town to visit friends. The improvement in her general condition has corresponded with the results of the examinations of the blood during this period, which have shown a continual improvement.

Examinations of the blood, says Dr. Smith, revealed a parasite resembling somewhat the youngest forms of the organisms seen in the two types of malarial fever prevailing in this country. It differs from them in certain important particulars. It is found in the blood in the largest numbers during the height of the febrile paroxysm. In malarial fever the young intracellular hyaline forms of organism are not abundant until some hours after the height of the febrile paroxysm—i. e., until sufficient time has elapsed after segmentation for the young parasites to penetrate the red blood corpuscles. The time-cycle is shorter with this parasite than in the forms of malarial fever prevalent in this country. In the fevers of the tertian and double tertian (quotidian) type the time-cycle (i. e., the time it takes the organism to go through all the stages of its development and begin anew) is about forty-eight hours. In æstivo-autumnal fever the time-cycle is about thirty-six hours, and in quartan fever about seventy-two hours. This parasite is resistant to quinine, while the younger forms of the malarial organism are very susceptible to it. Other differences are the larger size of this parasite, its freedom from pigment, its comparatively feeble power of amœboid movement, absence of segmentation, fainter outline, and absence of the characteristic forms of the malarial organism as we know it in this country (bizarre forms, ringlike forms, crescents, etc.). The case, Dr. Smith says, could only have been confounded with one of the æstivo-autumnal or fall type of malarial fever, as a case of tertian malarial fever would

have shown the larger pigmented forms of the organism, and a case of æstivo-autumnal malarial fever of such long duration would, in all probability, show the so-called crescentic bodies.

Dr. Smith thinks that, although the organisms resemble very closely some of the forms of malarial organisms, there are many features about the case which would suggest that it is not malarial in its origin. Observers in the Levant have looked upon this type of fever as malarial, notwithstanding its marked resistance to quinine; but the fact that there is no pigment found in the blood plasma or in the corpuscles; that it is resistant to quinine; that no marked degeneration of corpuscles is produced, such as we see in malarial fevers in this country, and no enlargement of the spleen, would suggest more than a doubt of its being of malarial origin. It will be observed, Dr. Smith suggests, that, although she had lived in a malarious region in southern Iowa up to the time of her marriage, and various members of her family there had suffered from malarial manifestations, she had never had any such manifestation until she went to Syria to live.

SOIL DISTURBANCE AND MALARIAL FEVER.—The *Indian Medical Record* for December 16th contains a long article on this subject by Dr. R. R. H. Moore of Jalapahar, Darjeeling, of which the following is the substance: Disturbance of the soil, he says, has come to be regarded as a frequent cause of malarial fever. If it is simply meant that malarial fevers have been known to break out in certain places coincidently with extensive disturbance of the soil in connection with canals or railroads, no objection can be offered, for this is a fact beyond dispute; but it is equally well known, he says, that these works interfere seriously with the flow of the subsoil water, causing it to rise and produce a waterlogged condition of the soil, or even a marsh, and these marshy conditions almost invariably produce malarial fevers; it is, therefore, evident that it is to these conditions the malarial troubles are due, and not to the mere disturbance of the soil.

Concerning the views of the different writers on this subject, the author states that the well known authorities, Kelsch and Kiener, are somewhat more explicit than their English *confrères*. They freely acknowledge that soil disturbance produces malarial fever by interfering with subsoil drainage and the consequent formation of artificial marshes, and they also appear to favor the idea that the disturbance of the soil releases a specific poison, but even they do not sufficiently distinguish between these two very distinct phenomena, and while bringing forward plenty of evidence in support of the former very obvious method of causation, they leave the latter pretty well to take care of itself.

The following quotations, says Dr. Moore, from their *Traité des Maladies des Pays Chauds*, show this plainly enough:

Regarding railway construction, they say: "Fevers appear either when these works are in progress, on account of the disturbance of

the soil, or, when they are completed, from the stagnant water which fills the hollow accidentally dug out for the formation of the embankments, and forms a sort of artificial marsh."

Again: "If marshes possess all the necessary factors for the production of malarial affections, these conditions may also be created by the disturbance of a previously healthy soil, so that every place where the soil is of recent formation may, on occasion, become a focus of malaria."

No further distinction is drawn between the two methods of causation, continues Dr. Moore, and, strange as it may seem, it is only too apparent that it never occurred to the authors to draw any distinction at all, and the fact that they have done so in the first quotation is merely fortuitous.

The following are two of the samples given by them of malarial fever caused by earthworks:

"Dr. Botrel, in his report upon the disastrous endemic of malarial fever in the Department of L'Ille-et-Vilaine, expresses his regret that the hand of man should assist in aggravating it, and in support of this view points to several ponds, extending along the railroad, the result in a great measure of the work of constructing and embanking. These artificial marshes dry up in the heat of summer and give rise to fevers, to which the personnel of the railway fall the first victims."

"In 1881, Dr. Evrad announced in the midst of the inhabitants of the Grand-Bruneval (Commune of Wallins, Oise), where malarial fever had never been known within the memory of man, an epidemic of intermittent fever, which spared no one, and which was caused by a marsh, the result of works undertaken by the Northern Railway Company."

These cases, and all the others given by the authors, with perhaps one or two exceptions, simply prove that in France marshes, whether natural or artificial, cause malarial fever, but to bring them forward to prove that soil disturbance causes malarial troubles is a simple misuse of terms.

Dr. Moore states that in Algiers frequent outbreaks of malarial fever in connection with soil disturbance have been reported, chiefly when agricultural colonies were being founded. M. Armand, he says, in his very able work, *L'Algérie Médical*, writes as follows:

"Why, when the soil is disturbed at the founding of a village, say in the middle of a plain, do these fevers usually become more prevalent? And why, two or three years after the village is constructed, does the state of health improve greatly in the same place?"

"This need not surprise any one who knows what happens in such a case; in spring, most frequently, a party marches out and camps at some point in the plain of Chélif, of Sig, of Seybouse, etc., to found an agricultural colony.

"In the midst of treeless land, these men must toil laboriously under a burning sun, against which a tent offers no protection. . . .

They are exposed to the full force of the sun all day, and find the opposite extreme in the cold and damp air at night; their food and drink are inferior to what they are accustomed to in their quarters.

"In fine, defective food, less refreshing sleep, exposure, more continued and more direct, to the vicissitudes of the climate. . . . Once begun, these works can not be interrupted, and, while the troops employed on other duties return to barracks in June or July, the rising colony remains exposed during the endemio-epidemic season.

"Considering that the fact of being in camp all the summer has a deteriorating effect upon the health of the men, even when no work is done, how much more will the effect be felt, when all the fatigue attending the establishment of a colony has to be encountered!

"The work of installation and construction does not involve as much disturbance of the soil as the subsequent tillage of the land, yet it is during the first summer that the state of the men's health is least satisfactory."

There is, continues Dr. Moore, a close resemblance between the conditions described here and the conditions affecting the troops in the early days of Hong Kong, and the parallel may easily be extended to the men in encampments.

In the agricultural colonies in Algiers as in Hong Kong, the greatest amount of fever did not correspond with the greatest amount of soil disturbance, a point absolutely indispensable if the two things are to stand in the relation of cause and effect, while in the three cases the men were living under conditions of great exposure and badly housed.

It appears, then, that there are three distinct categories in which all the cases where soil disturbance has been accused of causing malarial fever may be placed:

1. Where the disturbance of the soil has interfered with the sub-soil drainage and caused a marsh or an allied condition.
2. Where outbreaks of fever have been coincident with works executed in the soil, but not due to the simple disturbance of the soil.
3. Where malarial fever has been caused by a specific poison, released and brought into evidence by the breaking up of the soil.

Of cases that fall within the first category there are plenty, but, Dr. Moore says, it is a misnomer to speak of them as caused by soil disturbance.

Of the second class there are also plenty; they belong to the type of a gentlemen previously mentioned, who contracted the fever by digging in his garden. These cases are valueless.

That malarial fever is caused in the manner specified in the third category there is not sufficient evidence to show.—*Med. Record.*

SURGERY.

FORCIBLE EXTENSION OF THE SPINE FOR ANGULAR DEFORMITY.—At the Clinical Society of London, on November 12, Mr. Tubley brought forward the results of a series of twenty-five cases in which he had treated angular deformity of the spine by immediate reduction. The cases submitted to treatment were those in which no degree or a comparatively small degree of ankylosis had occurred, carefully avoiding all in which firm ankylosis had taken place. Over and above the prevention of subsequent deformities, immediate reduction has this distinct advantage, that it is easier to fix a straight spine than a crooked one. So far from the operation being open to the risk of inducing paralytic sequelæ, Tubley found in several cases that existing paralysis was relieved; nor had he encountered any untoward results in the dissemination of tubercle. The period of after-treatment with rest and fixation of the spine should not be less than two or three years; less prolonged care was only liable to lead to relapses. Seeing that the dangers of the operation are comparatively slight, and certainly not exceeding the mortality of the untreated cases, if we can be assured of the beneficial results of the treatment, the chief difficulty lies in the selection of the cases. Tubley summarizes the suitable cases as: (1) young subjects in whom the curvature is of short duration, is progressive, and has undergone no degree of firm ankylosis; (2) those in which local activity of the disease is manifest; (3) those free from visceral complications; (4) cases in which paraplegia existed and was not kept in hand by conservative methods of treatment. On the other hand, the chief contraindications to reduction seemed to be firm ankylosis, visceral tuberculosis, existing abscess, and curvatures of the cervical spine, where special dangers would be encountered. Cabot, however, was inclined to less caution in the selection of his cases. He was disposed to disregard the extent of the curvature, because though an extensive curvature represented the loss of a number of vertebral bodies, the resultant gap was not necessarily filled in by replacement of the vertebral bodies by new bone, but healing was then chiefly due to bony ankylosis of the posterior parts of the vertebral column. Equally, a considerable degree of ankylosis limited to the posterior part of the vertebræ could be removed by a preliminary osteotomy, so that each case could subsequently be submitted to reduction without risk of inducing paralysis. We should like more evidence of the resisting capacity of these alleged posterior bony adhesions. What weight can they sustain in the absence of the vertebral bodies? A firm and fixed curvature, whatever its degree, will be better than a straightened but infirm vertebral column.

The method of forcible extension of the spine is a revival of very ancient surgery; at any rate, it may be traced back as far as 1674 A. D., and in later times the abuses of the procedure seem to have inspired one of Abernethy's clinical lectures.

ERRORS OF DIAGNOSIS IN ORTHOPEDIC PRACTICE.—In a recent issue of the Philadelphia Medical Journal, Prof. Willard gives the following rules for practice :

1. Discard the idea of rheumatism of a single joint in children (especially in the hip) unless it is positively proved by acute symptoms. Tuberculous disease is much more probable, and treatment for the graver condition will frequently abort threatened joint destruction.

2. Any child may have local tuberculosis of a joint, no matter what its ancestry; heredity signifies only degree of resistance.

- 3 Do not attribute to "habit," a persistent limp. An inflammatory or paralytic cause is more probable.

4. All persistently fretful infants (especially those that cry when moved) should be carefully examined for evidences of spinal spondylitis. Older children, with stubborn irritation of the lung, stomach or intestine, should also be critically examined. Early diagnosis and treatment will accomplish excellent results.

5. In lateral curvature of the spine the indiscriminate and unskilful use of mechanical appliances does harm, while to neglect these means of fixation in spinal caries is ruinous.

6. To "let alone" a curable congenital bone-deformity after the first week of life is to lose the golden opportunity for cure.

DRAINAGE OF ABDOMINAL CAVITY FOR ASCITES.—B. Merrill Rickets (Cincinnati Lancet-Clinic, Oct. 9, 1897,) calls attention to a class of pathological conditions which has from time immemorial been treated medicinally, but which the writer thinks should be dealt with surgically, viz., fluid in the abdominal cavity abnormal in quality or quantity. In fact, all cavities containing fluid should be dealt with surgically. But this discourse is limited to the abdominal cavity. He relates his experience with three cases, the first one with chronic hepatitis, which lived eighteen months after the operation; the second of cardiac dropsy, which lived thirteen weeks; the third of Bright's disease, which lived ten weeks. Not only was the ascites relieved, but general edema was also. The first two cases died "suddenly," the last of empyema.

TREATMENT OF TUBERCULAR OSTEOARTHRITIS BY IODOFORM INJECTIONS.—Duplay and Cazin (Revue de Chirurgie, Nov. 11, 1897), after experimenting with other drugs, have lately confined themselves entirely to intra-articular injections of iodoform in the treatment of white swelling of joints. Because of the pain attendant upon ethereal solutions of this product they have employed a mucilaginous emulsion containing thirty-three per cent. iodoform; five cubic centimeters of this mixture was employed at a dose, containing between twenty and thirty grains of the active drug. Injections were repeated twice a week; when improvement was slow every second day. In seven cases the results were very satisfactory. In the eighth case, complicated by suppurating sinuses, resection

was necessary; the ninth required amputation. Results were especially good in white swelling of the knee-joint. Five patients treated for this affection were cured in from four to six months, and the cure was permanent. These patients were past the age of infancy and exhibited a local condition which apparently called for resection.

INJECTIONS OF ALCOHOL IN CARCINOMA.—Alcohol favors cicatrization in all growths like struma, angioma, cysts, lymphatic-gland tumors, sarcoma, carcinoma, and especially carcinoma of the breast and cervix uteri. Under its use, in fifteen out of eighteen cases of carcinoma of the breast, the growth gradually dwindled away, until in a year there was nothing left but the connective-tissue stroma, and there has been no return. Five cases of carcinoma of the cervix also recovered completely, and the patients are still living and in good health. The effect on the general health is even more surprising. The pains and uneasiness pass away, and sleep, appetite, assimilation and strength return in a most remarkable manner.—Hassel, *Medical Record*.

RECTAL FISTULA.—The following important points should be observed: 1. A careful physical examination of the lungs as well as of the entire rectum is to be made in every case. 2. Pulmonary tuberculosis is not necessarily a contraindication. 3. Do not put down the knife until certain that every sinus has been divided. 4. Remove all diseased tissue. Large wounds are not to be feared. 5. Caution: the sphincter is to be divided only once and at right angles. 6. Special attention is to be given to the mucous opening. 7. Invasion of the perineum must be avoided, especially in females. 8. Systematic antiseptics is necessary if good results are desired. 9. Care and patience are required in the after-treatment. Dressings are not to be left to the family nurse. 10. In the after-treatment two warnings are to be heeded: complaints of unusual pain by the patient and increase of the discharge. Either of these may mean the formation of another abscess. 11. Hemorrhage and incontinence of fæces are the chief danger. Both are amenable to treatment and should not deter from the operation.—Cooke, *Medical News*.

THE MANAGEMENT OF PATIENTS BEFORE AND AFTER LAPAROTOMY.—Dr. Wiggins, in a recent issue of the *Medical Record*, summarizes his views as follows:

1. The importance, whenever practicable, of prolonged preparatory treatment of patients about to undergo an abdominal operation.
2. The importance of the administration of cathartics in the early part of this period, followed by large enemas for the purpose of cleansing the intestinal tract.
3. The importance of keeping a record of the body temperature, respirations and pulse rate, for several days in advance of the operation, and of making a final examination of the urine.

4. The necessity in the female of arranging to have the operation performed a few days after the menstruation period, and the cleansing of the vagina, even when it is intended that the operation shall be by the abdominal route only.

5. The administration of a small quantity of peptonized food (one ounce) containing stimulants, two hours before giving the anæsthetic, for the purpose of lessening the tendency to nausea and vomiting after the recovery of consciousness.

6. The necessity of the anæsthetic being given by an experienced physician, and in the smallest possible quantity.

7. The necessity of protecting the patient's body properly with clothing and blankets during the operation.

8. The advantage of stimulating the pulse before the heart has become much exhausted, and of using intravenous saline injections before the radial pulse has become extinct.

9. The leaving in the abdominal cavity after free irrigation of a quantity of hot saline solution, for the purpose of stimulating the patient, preventing (?) the formation of intestinal adhesions and lessening the danger of septic infection of the peritoneum.

10. The necessity of making the patient comfortable by change of position during the first two days of convalescence, and by the use of the rectal tube.

11. The necessity for the early administration of food in reasonable quantities and at proper intervals.

12. The necessity of withholding stimulating enemata after operations in which extensive and firm pelvic adhesions have been broken up.

13. The necessity for deliberation as to the wisdom of reopening the peritoneal cavity in a given case of supposed concealed hemorrhage.

14. The importance of washing out the stomach as soon as the diagnosis of intestinal paresis is made, and of the persistent use of saline cathartics till the bowels move.

15. The importance of not administering cathartics to those convalescing from abdominal operations, and who are pursuing a normal course, too early or in too large doses.

THERAPEUTICS.

THE VALUE OF AN EXCLUSIVELY MEAT DIET IN CERTAIN CASES OF CHRONIC GOUT.—At a recent meeting of the Medical Society of London, Armstrong (Brit. Med. Journal, May 1, 1897,) related that during the last few years he had given trial in various cases of gouty arthritis and recurrent renal calculi, to a method of treatment based on the prolonged administration of only red meat and hot water. Very marked improvement had resulted, which had persisted in spite of a gradual return to an ordinary dietary. His own observations on auto-intoxication in relation to the causation of gout and

rheumatoid arthritis, had led him to believe, that it is the complex chemical changes, brought about by the admixture of red meats with carbohydrates and sugar that causes the excessive formation of uric acid. His plan is to give the patient a daily allowance of from one to four pounds of lean beef steak, minced and cooked in various ways, and the patient drinking from one to five pints of hot water, and avoiding all starchy, saccharin, and fermentative articles of food. The effects observed are rapid diminution in abdominal girth, loss of fat and flabby tissue, increase in the quantity, and ultimate disappearance of urates, alkaloids and toxins from the urine. The joint-swelling greatly diminished, the aching and pain became much lessened and the mobility of the joints was considerably increased. The capacity for work, mental and bodily, was enhanced and the symptoms of mal-digestion and disassimilation disappeared. This treatment is indicated in obstinate chronic gouty arthritis, in recurrent uric acid calculi, in frequent and intractable migraine, and in cases of persistent gouty dyspepsia. It has proved especially useful in the presence of symptoms of amylaceous and intestinal dyspepsia and of excessive formation of hydrogen sulphid, urates, indican, skatol, creosol and other toxins. The carbohydrates, by their affinity for oxygen, interfere with the due oxidation of the tissues. Under the plan of treatment proposed, digestion is more complete and the processes of fermentation and putrefaction are kept within narrow limits, oxidation being more perfect and less waste being consequently left in the system. Whatever poisonous matters remain in the system are readily eliminated by the taking of the hot water, which also flushes the stomach, liver and kidneys. The treatment is irksome and trying, and must of necessity be carried out with great strictness; therefore its use should be confined to the more difficult cases. It should be prescribed but rarely and then only under the most careful supervision in cases in which the heart or kidneys are diseased. Used with due care it is a most efficient and brilliant addition to therapeutic measures. In the discussion Haig admitted that certain cases of gout are benefited by a meat diet, as a result of its stimulating qualities. When it fails to act as a stimulant it is likely to prove dangerous.

ACTION OF ORCHITIC EXTRACTS.—In a series of experiments upon the action of orchitic extracts registered by means of a specially devised neuro-muscular apparatus, O. Zoth and F. Pregl, in Pflüger's Archives, Vol. LXII, p. 335, came to the conclusion that the capacity for work is increased by the action of such extracts, and at the same time there is a parallel decrease in the fatigue as well as a diminution in the subjective sensations of weariness. By the conditions of the experiment the authors believe that suggestion played no part in the results.

TREATMENT OF WHOOPING COUGH BY PHENOCOL.—M. Polierktoff, M. Uargus, of Barcelona, first tried phenocol in 1895, and derived

from it very good results. I have used it, too, in seven children who were attacked with whooping cough during measles. In all there was marked and rapid improvement. The remedy diminishes the frequency of the attacks and their intensity; the nocturnal attacks especially were less frequent, and the total duration of the disease notably lessened. The dose administered, from one to two grammes daily. M. Fabistocherski has had like success in forty cases at the Hospital "St. Olga." Without being a specific remedy, phenocol offers real advantages in whooping cough, and should always be resorted to when other remedies, particularly morphine, are contraindicated, especially in young children, in whom the disease is often dangerous. There are no inconveniences attending its use.

TREATMENT OF DIPHTHERIA BY SOLUTIONS OF MYRRH.—M. Stroll reports sixty-nine cases of diphtheria, two croupy, treated exclusively with a solution of myrrh, and all cured. Formula: Tinct. myrrh, 4 grammes; glycerine, 8 grammes; distilled water, 200 grammes. Solutions given to children day and night; during the day, every hour; in grave cases, every half hour; during the night, every two hours, every hour in grave cases. One teaspoonful for child of two years; two from two to six years. When the false membranes diminish, lessen the dose; no danger in the use of remedy, children bear it well. *M. Stroll rejects local treatment and serotherapy absolutely.*

ECZEMA TREATED WITH PICRIC ACID.—Brousse recommends (Jour. de Méd., Oct., 1897,) the employment of picric acid in some cases of eczema, the indication being an acute attack, particularly should there be any tendency to epidermic ulceration, and in the seborrheic or impetiginous eczema of children. But the method is contraindicated in chronic cases, and generally in those accompanied by epidermic thickening, though, should there be much itching in the latter, it may prove beneficial. The method of employment is as follows: A saturated solution of picric acid is painted on the affected parts, the application extending slightly beyond the limits of the eczematosous area, then cover immediately with absorbent wool, or it may be with a compress soaked in the same solution, and over which the wool is applied. This is allowed to remain on for about two days.

The skin should previously be cleaned with some antiseptic, so that no suppurative organisms may be allowed to remain in contact with the diseased parts during the time that they are covered by the wool dressing. The staining due to picric acid may subsequently be removed by washing in a saturated solution of lithia carbonate.

UREA AS A DIURETIC.—Klemperer (Berl. Klin. Wochenschr., 1896,) in an address on the treatment of hepatic cirrhosis, strongly recommends urea as a diuretic. He advises that recent ascites should be treated by means of diuretics and not by tapping, the former being

in his opinion a more efficient and lasting method. He records at length two cases of recent liver cirrhosis with ascites which he treated with urea. In both cases the urine rose rapidly, the ascites disappeared, and the result was as satisfactory as can be in such cases. He has also used urea in the uric acid diathesis, stone in the kidney, and uric acid gravel, following the example of Rosenfield (*Centralbl. für Klin. Med.*, Bonn, 1895, s. 28). It dissolves up uric acid freely, and Klemperer found it superior to piperazin and lysidin in these cases. He gives it up to 150 and 300 grains daily, and there are never any unpleasant symptoms caused by its use. Klemperer is of the opinion that, being as it were the natural diuretic, its action is very much more favorable when the kidneys are intact than when they are diseased.

Returning to the subject (*Deutsche Med. Wchnschr.*, Leipzig, 1896, No. 47) after further experience, he still advises its use in ascites and dropsy when not of renal origin. In forty-two cases of stone in the kidney he has found that it is an excellent solvent for uric acid. He gives it simply dissolved in water or in the following combination :

R: Urea,
Sodium bicarbonate,
Calcium carbonate, of each 1 ounce.

S.: Half a teaspoonful four or five times daily.

It may also be given in gouty subjects with lumbar pains, when both its solvent action on urates and its diuretic effects do good.

Kohn (*Ztschr. für Heilk.*, Berlin, 1896, bd. xvii, s. 395) has not been able to form so high an opinion of the value of urea. He attended to Klemperer's advice only to give it in cases where the kidneys are healthy. He treated in all ten cases—four of hepatic cirrhosis with ascites, two of pleurisy with effusion, one of pericarditis with effusion, one of tubercular ascites, one of ascites from carcinoma, and one of ascites from cardiac disease—giving daily 75 to 375 grains. In each case the daily amount of urine and its specific gravity were carefully ascertained, and a comparison of the effects of urea and of other diuretics, such as diuretin, digitalis, calomel, and sodium salicylate, was made on the same patient. Kohn found that its action as a diuretic is uncertain, and that where it acts it does so by stimulating the secreting mechanism of the kidney. It has no unpleasant effects. In three of the above mentioned cases there was a marked increase of the urine, but in the others it failed to act; while digitalis, diuretin, calomel, and sodium salicylate all increased the urine more decidedly.

Bettmann (*Berl. Klin. Wchnschr.*, 1896, No. 49) has also tested Klemperer's results clinically. He treated twelve cases—three of liver cirrhosis with ascites, four of pleurisy with effusion, and five of other serious exudations—but in none were the results more than very moderate; 150 to 300 grains of urea was given daily in water, and the results are tabulated. The rise of urine in some

cases was slight, in others it was completely absent, and in the former it was not enduring. In most of the cases up to six ounces of urea altogether, and in one up to eighteen ounces, were given without causing any unpleasant symptoms in the patients.

Von Noorden ("Real. Encyclop. der Gesammten Heilkunde," 1897, art. "Herzklappenfehler") states that in cases of general cardiac dropsy he has used urea in daily amounts of 90 to 150 grains with excellent results as regards an increase of diuresis—*Edinburgh Medical Journal*, July, 1897. *Therapeutic Gazette*.

A CASE OF MALIGNANT PEMPHIGUS IN A SIXTEEN-YEAR-OLD GIRL.—Arning exhibited the case to the Hamburg Surgical Society (Münch. Med. Wochenschr., 1897, xlv, 212). The following three points speak for its malignancy: Early involvement of the mucous membranes in the formation of the pemphigus bullæ, which was present in an extensive form in this case on the conjunctivæ; an inclination of the pappillary bodies within reach of the individual efflorescences, to form new growths, the formation of vegetating forms; very marked vulnerability of the skin, a rapid formation of bullæ from a slight irritation of the skin. The treatment consisted in the administration of large doses of quinine, with seemingly good results.

PEDIATRICS.

A FEW WORDS ON THE NURSING OF CHILDREN HAVING DIPHTHERIA.—Thomas (Der Kinderarzt, 1897, viii 10). The author does not believe that the treatment with antitoxine injection alone is sufficient, but recommends as well the carrying out of all rules of general therapeutics in vogue before antitoxine treatment was employed. It is necessary in the first place to administer a roborant diet. The cleansing of the mouth and nose with a 1 to 2 per cent. solution of salicylic acid is to be recommended, it being of great value for the removal of secretion and pseudomembranes. A bath of lukewarm water also should be administered, for the preservation of the function of the skin is of great importance. The diet of a child suffering with diphtheria is at all times an important problem, as it frequently happens that children will not eat or drink for days together, and occasionally a case is met with which dies for want of food, although the disease has been cured.

Finally, as the after effects of serum therapy frequently cause some anxiety, it devolves on us especially to feed the children mainly with milk during the first few days, on account of the danger of the occurrence of nephritis. As most children who are fed on milk in scarlatina escape an attack of nephritis, this measure should be also brought into use in diphtheria. It insures the normal action of the kidneys, and represents at the same time an adequate nourishment. Metabolism is accelerated by treatment with serum. Dr. Valette has shown that the urates and phosphoric acid are greatly

increased. It stands to reason, however, that we should endeavor to diminish as much as possible the work of the kidneys.

CONTRIBUTION TO THE LAW OF HEREDITY OF TUBERCULOSIS.—Wolff (Munch, Med, Wochenschr., 1896, viii, 941). The author points out with great force to what great a degree hereditary factors influence tuberculous disease, and that in the absence of the former only very grave causes will bring on the disease. Should tuberculosis be found among a great number of children having the same mother, the heredity is not on the latter's side; if the youngest children are attacked by tuberculosis, both parents seemingly remaining well, suspicion points to heredity through the mother; if the oldest of a large number of children contract it, the father is to be considered the hereditary cause.

In phthisical families infant mortality is with few exceptions very large.

Malignant neoplasms, and especially cancer, make their appearance in tuberculous families with such obvious frequency that it is impossible to attribute it to chance. The author, for example, found the cause of death of parents among 454 patients in thirty-seven cases to be "some malignant growth." Psychoses and grave diseases of the spinal cord, as well as neoplasms, occur with relative frequency in tuberculous families. It seems that tuberculosis and psychoses must be looked upon in many cases as an expression of the same constitutional vice. The smaller the hereditary taint is, the greater must be the injury to give rise to a tuberculosis, and the more favorable are the chances of an ultimate cure.

TANNALBIN IN INFANT PRACTICE.—Tannalbin has been used in seventy-five cases of intestinal complaints in children by Dr. Hans Osk. Wyss (Corresp. Blatt. für Schweiz. Aerzt., 1897, No. 15). Of this number fifty-three were cured and ten improved. The writer found that in enteritis and acute gastro-enteritis its action was always prompt, even the day following the administration the number of the dejections decreasing, and their color and consistency improved. Cases of subacute intestinal and gastric catarrhs were cured in a few days, and in a few cases where all other remedies had failed. Nor was its action any the less satisfactory in chronic, serious intestinal catarrhs, and particularly in those of a tubercular character. Its action, though slow, was certain in cases where even opium in large doses was ineffectual. Chronic rectal catarrh was also rapidly cured, and, in short, tannalbin was found to be one of the best and most reliable anti-diarrheal remedies, no deleterious by-effects ever having been observed to follow its use. On the contrary, an improvement in the appetite was uniformly observed to follow its administration. The doses given were 0.25 gme. from two to six times a day for nurslings and children up to 2 years of age, and 0.5 gme. for children 2 to 5 years of age, given from three to five times a day. At times the remedy was also given in the form of an injec-

tion per rectum, in the dose of 0.5 gme., with starch, when excellent, rapid results were obtained, especially when the remedy was given per os also.—*A. M. S. B.*

TWO CASES OF CEREBRAL ABSCESS OF OTITIC ORIGIN.—The first case reported by Gradenigo is of special interest. (*Ann. de Mal. de l'Or.*, No. 4, April, 1897.) A child of six years, who had long had an otorrhœa, suddenly began to suffer from pain in the head and ear, accompanied by vomiting, chills, fever, loss of consciousness, bilateral optic neuritis, complete coma, etc., but without alteration of the soft tissue around the ear.

The usual mastoid operation was performed. This was followed by some improvement, but rigidity of the neck persisted; temperature, 100.4°; pulse, 100°. Two days later a second operation was done. A large trochar-canula was forced through the dura-mater, the portion corresponding to the tensor tympani having been exposed. Six cubic centimeters of grayish fetid pus was aspirated. The abscess which was located in the third temporal convolution was easily opened. In spite of the appearance of a cerebral hernia on the third day and some symptoms of septic infection, the patient recovered. The staphylococci pyogenes aurei were found in the pus, and during the pyohemic period there was found in the blood of the patient also the lanceolated diplococcus of Fraenkel.—*Laryngoscope.*

DEPARTMENT OF HISTOLOGY, PATHOLOGY AND BACTERIOLOGY,

CONDUCTED BY

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Questions requiring an answer must be accompanied by *postage*, otherwise they will be answered only through these columns.

SALUTATORY.

In conducting this Department, two objects will be kept in view. These will be (1) to condense from other journals such papers pertaining to these branches as may appear to be important to our readers, and (2) to endeavor to answer questions from practicing physicians who lack the facilities for modern research. Within the last ten years the progress in medical science has been so rapid that only those who can give it close attention have been able to keep abreast, and many who feel a keen interest in the result of laboratory studies grow bewildered amid the maze of technicalities, and pay no further attention to it. These are the men whom we wish to enlist as allies, and to whom we appeal for aid from the bedside. We beg that cases

of interest be reported and we hope that the help these columns are capable of giving may be sought freely. Among modern discoveries are many useful means of diagnosis that unfortunately are rarely used, and often a word of explanation is all that is needed. Widal's test for typhoid fever is a case in point. Simple, easy and certain, it is rarely used, because it is generally thought to be complex and difficult, and it is in such matters that we hope to be of service.

In another way it is important that the laboratory should be in close touch with clinical results. This is that results and deductions reached by chemical and biological experiments be checked and tested by use. The human body is not a test tube, and many substances react when exposed to the action of cells in the body in a manner that differs widely from their behavior in a test tube. Again, the lower animals are different from man in regard to disease and it is only on them that pathology can be studied to advantage. Many questions arise that need the wide range of experience that general practice alone can give for their solution. The interdependence of some diseases, the degree to which others are contagious, the effect of remedial agents are among the problems only to be solved by careful records of many cases, and a pathologist is liable to be misled, be he ever so conscientious, if he is forced to depend on his own experience or the records of a few hospitals.

Another field of usefulness, and one that no one who wishes a broad mastery of pathology can neglect, is that afforded by our domestic animals. Many of them suffer from contagious diseases that are more or less dangerous, and no steps are taken to prevent them. It is true that glanders, anthrax, tuberculosis and some others are being studied and their ravages checked, but influenza and many others are accepted as unavoidable and thousands of dollars lost every year as a consequence. To the practicing physician, his horse is vital, and to all of us as good citizens, these diseases must call for our best care.

The editor of this Department begs that his brother physicians send him specimens of diseased tissue, human or not, and hopes to enlist every medical man to whom this journal comes as a willing and able co-worker in battling with disease.

VISCERAL LESIONS IN EXTENSIVE BURNS.

The fatal result that follows extensive burns has long been known and various theories propounded from time to time to account for it. Bardeen (*Jour. of Exper. Medicine*, Vol. II, No. 5, p. 501,) has studied the visceral changes in five cases in Johns Hopkins Hospital, in which death had followed the injury in from 4 to 9½ hours after the injury.

He found as the chief gross changes, cloudy swelling of the liver and kidneys, softening and enlargement of the spleen, and especially

swelling of the lymph nodes and gastro-intestinal lymph nodules. A moderate hyperaemia of the thoracic and abdominal organs was noted.

Microscopically there was parenchymatous degeneration of liver and kidneys and *marked* changes in the blood. The red corpuscles were degenerated, the white greatly increased in number, and the bone marrow showed foci of degeneration. The lymph nodes presented cedema, swelling and fragmentation of lymphocytes and areas of necrosis. The similarity of these to the lesions of infectious disease leads Bardeen to conclude that the remote lesions in superficial burns due to some toxic substance in the blood.

QUESTIONS.

E. M., Augusta.

PLASMODIUM MALARIA.

A good method of examining blood for plasmodia is as follows:

Use coverglasses No. 0, $\frac{3}{4}$ inch, circles and clean them in alcohol and ether to get off the oil that is sure to be on them if handled. Preserve a dozen or so in ether and just before using rub two of the covers with Japanese paper so as to have them bright and clean. Draw a small drop of blood and touch the surface of one of the cover glasses to it, then pass the other over it very lightly and quickly slide them apart. In this way a thin film of blood will be on each cover glass which should be allowed to dry in air. Then put the glass and film into a mixture of equal parts of absolute alcohol and ether for some time, or expose to a temperature of 120° C. for 15–20 minutes.

Many authorities recommend direct examination without staining, but I prefer to stain. The one I prefer is this:

Saturated solution of Thionin in 50% alcohol 20 c. c.

2% carbolic acid, 100 c. c.

The Thionin used should be that made by Cogit et Cie., Paris, as others are unreliable. It can be procured from Queen & Co., Philadelphia, at 25c. a gramme. The mixture should stand a few days to allow the carbolic acid to act on the Thionin. Float the cover glasses on the stain, film side down, for ten minutes, rinse, dry, clear with xylol, mount in balsam and examine with an immersion objective.

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ORIGINAL COMMUNICATIONS.

ACUTE TUBERCULAR ULCERS OF THE SKIN FROM INOCULATION.*

BY WADE H. ATKINSON, M. D.,
Washington, D. C.

There is no disease that has caused as much suffering to the human race as that of the dread disease tuberculosis.

It has made its inroads in every walk of life. Every profession that man has chosen has had its consumptives. The disease has no respect of age, color or nationality, and is found in every clime.

There are few family trees in all the history of the world that would not show the blight of tuberculosis among its branches, and often the strongest, richest and most beautiful are first to bow their heads.

Such a universal and fatal disease must necessarily be of the greatest interest to every member of our profession, and I believe the profession should strive to impress upon the public the infectious nature of the disease, its various forms and manner of contagion.

Every organ and every tissue of the body seems to have been infected with tuberculosis.

The very rare form of tuberculosis of the skin, and especially its acute ulceration from inoculation in those individuals whose family nor personal history show tubercular deposits or lesions in other tissues or organs of the body, are the characteristics I wish to report to-night.

Our knowledge of tuberculosis of the skin from inoculation is of comparatively recent date. The following being the majority of cases reported in our language up to the present time. Zeisler's classification of tuberculosis of the skin is a very good one, for it is justified by difference in the anatomical structure, and still more by the clinical symptoms peculiar to each:

*Read before the Medical and Surgical Society of the District of Columbia, March 3rd, 1898.

1. Tuberculosis cutis vera.
2. Scrofuladerma.
3. Lupus Vulgaris.
4. Tuberculosis by inoculation.

Under this latter head would fall four sub-divisions.

- a. Veruca necrogenica or anatomical tubercle.
- b. Tuberculosis verucosa cutis (Rehl and Paltan).
- c. Tuberculosis papillomatosa cutis (Morrow).
- d. Tuberculous ulcerations produced by inoculation.

The cases I quote (14 in number) and the two cases of my own, come under sub-division (d) of the fourth classification.

*Elsereberg in 1886 reported the following cases observed in Billroth's clinic to the Vienna Medical Society.

1. One case of tubercular ulcer which followed the ritual circumcision, the infection was from the mouth of the operator, who sucked out the fresh wound.

2. A girl, sixteen years old, presented in the lobe of the ear a hard, reddish blue non-ulcerated nodule, which appeared after wearing a piece of red yarn passed through the hole made for earrings.

3. A case of an ulcer on the upper arm developing from the stab wound of a knife.

4. A washerwoman, fifty years old, infected her face by scratching an acne pustule which developed at this point a tubercular ulcer. At the time this lesion appeared the patient had been washing the clothes of a tubercular subject.

5. In a girl of twenty years old, there appeared a fistula in the arm, with a bluish appearance of surrounding skin at the sight of a sub-cutaneous injection of morphia. The source of infection was an unclean needle.

Elsereberg says in all these cases small tubercular nodules formed, resulting in atonic ulcers, and showing characteristic giant cells and bacilli. All the ulcers he reported were excised.

Bowen of Boston referred to a case of a veterinary surgeon who received a wound while opening the body of a tubercular cow, from which followed tuberculosis of the skin, tuberculosis of the lungs and death.

Rutherford, in Glasgow Medical Journal, 1894 (xii), reports two cases of tubercular ulcers occurring in dispensary service, the patients being sisters. One eight and one-half years old had a sore to appear on foot, near the bunion joint of little toe, one inch in diameter. The ulcer was curetted repeatedly, and points cauterized, which resulted in temporary relief only, but healed after being excised. Second sister, six years old, was the subject of eight patches over body. All were excised and healed with first intention except one, in which granulation showed in wound. Second excision healed.

*(Bowen) Boston M. & S. J., 1888, cxiv.

History of perfect health otherwise. The family history showed all in healthy condition except father, who had a heavy cough and bronchitis, and used spittoon that was usually cleaned by six-year-old sister. The father, however, would not be seen by a doctor.

In the discussion of Dr. Rutherford's paper, it was thought that this little child carried the tubercular germs under her finger nails, and infected herself in these several spots by scratching.

It is evident to me that the eight and one-half year old child, above mentioned, inoculated herself, when walking around with an abrasion in her foot, where her father had expectorated.

Another interesting case of a similar nature of inoculation is one reported by *Dr. Workman, of a washerwoman, who fell and cut her foot on a broken spittoon used by a tubercular patient. A tubercular granulating tissue presented itself in the wound, which would not heal until excised.

Hardaway of St. Louis (A. J. M. Sc. Phil., 1884, N. S., cvii.), reports a case of tuberculosis of the skin, where the first spot appeared on the cheek, and in one month later five or six spots appeared on the face.

Ransom (J. Cutan and Genito Urin. Dis. N. Y., 1895, xiii.), reports the case of a child six years old, where a spot first appeared on chest, followed with enlarged glands under the arm, diagnosis confirmed by inoculating a guinea pig. In the same article he reports the case of a girl, nineteen years old, who had an unusual case of tuberculosis of the skin. In one year five different regions of the skin were involved. No mention of other tubercular symptoms.

Shoemaker of Philadelphia (J. Cutan and Genito Urin. Dis. N. Y., 1890, viii.), reports two cases in which the tubercular lesions were much more extended. A girl, fourteen years, belonging to a healthy family, removed the rings from the ears of a friend who had died of phthisis, and placed and wore them in her ears. An ulcer soon formed on the lobe of the left ear. The tubercular character of this ulcer was attested by the presence of tubercle bacilli. Suppuration of a cervical gland followed, and finally well marked pulmonary consumption.

The second case Shoemaker reports is that of a male, farmer, with good family history, fifty-six years old. He had had the malady thirteen years. Left cheek is covered with a large, smooth, white, glossy scar, lower lid is everted. The stripes upon the left side of the neck are well advanced in the cicatrizing stage, dry and partially covered with thin, yellowish scabs. The stripe running horizontally across the right side of the neck is studded with warty excrescences of moderately large size. Lesion over the sternum healing rapidly. A few small warty growths project from its surface.

The ulcers upon the back of the neck and scalp are also nearly healed. Just above the sore upon the scalp is a sinus which leads

* (Rutherford) *Glasgow Medical Journal*, 1894, xii.)

down to the bone, and which is found, upon probing, to be necrosed. For a period of ten years, therefore, the disease remained localized upon the integument, and the man's general health remained good. One year later, however, necrosis of the occipital bone was observed, and an examination showed that pulmonary tuberculosis had begun.

The first case occurring in my own practice was that of Mrs. S., thirty-five years old, and a dealer in furs. General health not very good, having had several hemorrhages from the lungs, and at this time has a slight cough. Family history shows father and mother in good health. One brother is in Colorado for lung trouble, and one sister also has had hemoptysis. Remainder of family, four in number, in good health.

In September, 1896, patient called to be treated for small jagged ulcer on soft palate, which healed with great difficulty, after having been cauterized and antiseptic wash used. Syphilis was excluded by history given. November 9th, 1896, I was consulted for a small sore spot on the scalp over the left parietal eminence, which had had several scabs picked off. The little scab was washed out thoroughly with peroxide of hydrogen. Patient presented himself every second or third day, when all scabs, etc., were cleaned away and dressed. For nearly two months I dressed this spot from two to three times a week, using different kinds of antiseptic washes, cauterized, curetted and applied all the dressing powders I knew of. At times the ulcer seemed to be healing, then a relapse would occur, and the ulcer would become as large or even a little larger than before. The latter part of December my patient grew tired and discouraged, and upon the advice of some one, he fell into the hands of a "cure all, with a plaster," and for ten days more little black patches over his ulcer, which was not washed out during that time.

At the end of ten days patient returned, and I removed the plaster, found ulcer enlarged and another small ulcer in the adjoining tissue. Cleaning the scabs and crusts away from the edges, I found the two ulcers connected through a little tunnel, and small punched out pin head holes in the skin around the jagged, gnawed out ulcers. I at once called Dr. McKinmie, who had been treating an ulcer similarly located upon my own scalp, in consultation.

The second case, therefore, occurred upon a male subject, thirty years old, and by profession a physician, myself. I have always enjoyed good health. Paternal grandparents died between eighty and ninety years old. Maternal grandfather drowned about the age of forty, while enjoying good health. Grandmother died suddenly at about fifty-five years of age. My father and mother are both living and in good health. I am one of ten children, three succumbing to infantile diseases, and seven in good health. The youngest being twenty years of age. The ulcer upon my scalp appeared about twelve or fifteen days after I first dressed the one on my patient's head. It appeared as a raised papule, which I picked off with my fingers. This I did for a few times before I noticed a little depression

or hole in the scalp, which seemed to be covered with a scab, and the presence of moisture on its removal. My faithful friend, Dr. McKennie, washed and dressed this little place daily for about forty days. At times we were both encouraged by the behavior of the ulcer, and then it would appear to suffer a relapse. In the early part of January, Dr. McKinzie and I consulted with Dr. W. P. Carr, upon the advisability of excising the ulcer on my head before proceeding further with my patient, Mr. S., recognizing the similarity of the two cases. As a result of this consultation, on January 9th, 1897, Drs. Carr, McKennie and Ellyson excised the ulcer under cocaine anesthesia, and, Mr. President, I take this opportunity of extending my sincere thanks to these gentlemen, for their kind and efficient service.

The excised ulcer, through the kindness of Dr. Waller Reed, Surgeon U. S. A., was examined and the following report given:

*"Microscopic examination shows an ulcer of the skin, whose floor is covered with a layer of partially necrotic material, consisting of polynuclear leucocytes and fibrin. The cellular tissue beneath the ulcer is densely crowded with leucocytes and young connective tissue cells. In this layer are also to be seen collections of lymphoid cells, together with an occasional giant cell in their midst. Some of these show commencing central caseation. The microscopic diagnosis is, therefore, tubercular ulcer of the skin."

Upon the result of this examination, Drs. Carr, McKennie and myself excised the ulcer upon Mr. S.'s scalp, completely removing the indurated tissue down to the periosteal covering, and bringing the edges together with deep sutures. Both wounds healed by first intention. Comparing the two cases, we see an ulcer upon the scalp of a farmer who deals in animal hides, raw and tanned, and who has shown previous signs of phthisis. About fifteen days after treating this patient, an ulcer appeared on my scalp in the same location, and having the same microscopical characteristics. Both patients using the same barber shop. It is clearly proven, to my mind, that Mr. S. had an ulcer which came from inoculation, either from himself or the handling of furs, and that I inoculated my own scalp with the tubercle bacilli by scratching the scalp, or else was inoculated by the barber. Upon inquiry at the latter's shop, we found that no other patrons had sores on their heads.

Tuberculosis being a disease of known bacilli, it is, therefore, transmitted by bringing the micro-organism in contact with an abraded surface. The bacilli are carried in the sputa, excretions, clothing or articles used by a tubercular subject. Also from animals, their excretion, hides, offal, etc., and among those working in the dead room.

The treatment in these cases has been excising, curetting, cauterizing, electricity, antiseptic washes and dressing powders of a drying nature, subcutaneous injections of serum, and various salves and ointments. The treatment par excellence, is removing all the infected

*For illustration see page 255.

tissue with the knife, closing the wound with sutures, and applying antiseptic dressing. This should be done as soon as possible to remove the source of contagion, and prevent it from extending into other tissues.

NEW GROWTH OF THE BLADDER WITH OPERATION.

By EDWARD REYNOLDS, M. D.,
Boston, Mass.

Mary H., six-para, appeared at my clinic at the Boston Hospital on April 17, 1897. She was a fairly well nourished woman, in fair health, complaining of no abnormal symptoms other than frequent and painful micturition. She urinated about once an hour in the daytime and from two to three times at night. There was slight tenderness on pressure over the situation of the right ureter. The uterus was slightly retroverted and movable. It was put in place and sustained by a pessary without any effect on the urinary symptoms. On April 24th a cystoscopic examination of the bladder made with the Kelly cystoscope in the knee-chest position, showed a much reddened mucous membrane just inside the right ureteral orifice and two small excoriated looking spots near the right ureter. All these spots were touched with a ten per cent. solution of formalin, and the bladder washed out with a normal salt solution. Specimens obtained by catheterization of the ureters showed nothing more than a slight irritation of the right pelvis. (See reports appended.) She was put upon a regimen of eight tumblerfuls of water daily, a mainly nitrogenous diet, and a fifteenth of a grain of corrosive sublimate in pills three times daily. The local treatment was repeated at weekly intervals during the next month, the spots treated improving, but others always reappearing shortly. During the second month the solid nitrate of silver was substituted for the formalin applications, but the excoriations increased progressively, and began to appear raised above the surface of the bladder, being now localized between and above the two ureters and at a little distance from their orifices.

The ulcerated surfaces were lightly scraped with a curette and the result submitted to the pathologist. Result; no tubercle bacilli were found. (The family history was good.) This examination was repeated several times with negative results. Her progress during the next three months may be summarized by saying that the symptoms remained unaltered, that the mucous membrane around the ureters gradually resumed a normal appearance and the tenderness over the right ureter wholly disappeared, but the protrusion of the reddened and roughened patch between and above the two ureteral orifices steadily increased in spite of frequent cauterizations with nitrate of silver and the occasional use of a dull curette upon it. Pain after passing urine grew more severe, but did not last long. The base of the protruding mass is slightly smaller than its summit. On September 23d she was etherized and elastic catheters

placed in each ureter, each being inserted about two inches. The bladder was then separated from the uterus up to almost the level of the peritoneal reflexion by an incision similar to the anterior incision in vaginal hysterectomy, the patient being in Pean's modification of the Sims position. The cervix was then held well backward by a double tenaculum, a large cystoscope passed into the bladder, and under the guidance of the eye, a knife was passed into the bladder and an incision made between the right uteral orifice and the supposed new growth. This cut extended through the vesical mucous membrane and the submucous and muscular tissues so that the point of the knife was visible in the freshly made space between the bladder and cervix. The edges of the incision were now spread apart with tenacula from the vaginal side, when with curved scissors the incision was easily carried around the whole new growth at a distance of about half a centimeter from it on each side and a little more than this above and below, the uteral orifices thus lying just sufficiently outside the cut to permit of suture of the vesical walls. The vesico-vaginal fistula was then closed with an uninterrupted catgut suture, being brought together from side to side, and the anterior vaginal wall was reunited to the cervix by a similar running catgut suture. A self-retaining catheter was placed in position and several instruments of different curves, as well as one soft catheter, were tried during the next two days, but as all of them produced vesical tenesmus they were withdrawn and the patient was allowed to pass her own urine. The wound looked thoroughly well until the tenth day when a very small opening was detected in the middle of the vaginal incision, and the leakage of a few drops of urine through this hole whenever the cervix was pulled backwards showed that there must be some failure of union in the vesical wound. This small fistula healed spontaneously in ten days, there never being enough leakage of urine to stain through a small amount of gauze placed in the vagina. The patient was discharged from the hospital on October 16th feeling perfectly well, urinating about once in two and a half hours upon an average and never more than once at night. Micturition painless. The specimen was submitted to the pathologist and very much to my surprise was reported to contain nothing but connective tissues underlying an inflamed mucous membrane. Pathological diagnosis: localized chronic inflammation. A week later there was some pain before and after micturition, and a cystoscopic examination showed several small blood clots each about the size of a pin head apparently lying under the superficial layer of the mucous membrane along the line of the cicatrix, which was plainly visible in the median line of the bladder between the ureteral orifices, both of which were normal looking and now about half a centimeter apart. Careful puncture of the epithelium with a cervical spear released each of these tiny clots and the symptoms cleared up. A week later she returned, stating that she was micturitating somewhat more frequently and suffering

from a dragging pain in the pelvis. On vaginal examination on this day, October 30th, the cervix was much congested, the uterus in position, but low in the pelvis and considerably enlarged. (The pessary had been omitted as unnecessary several months before.) On questioning the patient she said she should have been unwell just after the operation (nearly six weeks before) but that menstruation failed to appear. Diagnosis: probable pregnancy at two months. Pessary adjusted. The course of the case since then may be summarized as follows: The dragging pain was relieved by the pessary, the diagnosis of pregnancy proved to be correct and the pessary was removed when the patient was about four months along. About two and a half months after the operation, *i. e.*, at about the third month of pregnancy, micturition became somewhat frequent and slightly painful. On examination of the bladder several reddened spots were seen in the neighborhood of the cicatrix, and were treated with light applications of nitrate of silver. They proved very obstinate and some weeks later were represented by reddened nodule, but under deep catheterization with nitrate of silver these disappeared, and at the present time of writing (nearly five months after the operation and when the patient is six months advanced in pregnancy) the mucous membrane is substantially normal, and nothing more than occasional slight redness about the cicatrix has been visible during the last month. At about three and a half months advancement in pregnancy the patient became conscious of a constant dragging pain in the neighborhood of the bladder. This has resisted all treatment, but seem to be growing a little better. It is evidently due to the traction of the enlarging uterus upon the bladder in the region of the cicatrix, and it is to be hoped will disappear with the birth of the child.

The negative result of the pathologist's examination of the new growth was a considerable surprise. Time alone can show whether the tumor was or was not as benign as it appeared. In any event, it seems probable that the obstinate resistance to minor treatment renders its operative removal justifiable. The case is reported at this time chiefly because the greatest interest lies in the form of the operation employed. The technique was extremely easy, and it was interesting to see how readily and safely a new growth situated upon the posterior wall of the bladder at a point too high to be readily accessible from the vagina could be reached by this incision. I should certainly be encouraged to employ this method again for any similarly situated neoplasm.

ANALYSIS OF URINE.

Right Ureter.
 Date, April 19, 1897.
 Amount received, 55 c. c.
 Color, Pale, turbid, Sp. Gr. 1010.
 React. Acid. U (per cent.) 0.63 per cent.
 Albumin, 1-20 per cent.
 Bile Pigments, abs.
 Sugar, abs.
 Sediment: Many small caudate medium and large, round and irregular cells and a few squamous cells (ureter, bladder and pelvis.)
 Considerable normal and abnormal blood. An occasional hyaline and granular cast with a little fat and normal blood adherent. Occasional small round cell, like renal. Some fibrin and an occasional leucocyte.

ANALYSIS OF URINE.

Left Ureter.
 Date, April 19, 1897.
 Amount received, 38 c. c.
 Color, Bloody, Sp. Gr. 1011.
 React. Acid. U (per cent.) 0.76 per cent.
 Albumin, 1-10 per cent.
 Bile Pigments, abs.
 Sugar, abs.
 Sediment: Chiefly normal blood. A few small caudate and large round and irregular cells. Occasional leucocyte. Rarely a granular cast seen. A few small round cells like renal.

THERAPEUTICS.

CACTUS GRANDIFLORUS IN CARDIAC PAIN.—A case lectured on by Prof. Solis-Cohen (Polyclinic) exhibited the good effects of the persistent use of fluid extract of cactus grandiflorus in relieving cardiac pain. The lesion was mitral obstruction with leakage, in a woman 30 years of age. The lecturer stated that his own experience with this drug had been unsatisfactory, and he had not used it for more than a year past. In the present instance, however, it had been prescribed by his chief of clinic, Dr. Riesman, in whose hands the result had certainly been good. He was therefore encouraged to renew his own resort to cactus, and to give it for longer periods before again abandoning it. The dose in the case demonstrated, was twenty drops three times a day. It is safe to assume that the negative results from the use of this drug frequently reported are largely due to the use of an unreliable preparation, since according to trustworthy reports drug gatherers do not distinguish carefully between the various cactææ.

IODOFORMAL.—Reuter (Deutsche medicinische Wochenschrift, 1897, No. 32; Centralblatt für Chirurgie, December 4, 1897,) has employed iodoformal extensively in various sorts of wounds and purulent inflammations, usually in the form of this ointment:

R Iodoformal..... 15 grains.
 Peruvian balsam..... from 3 to 5 drops.
 Anhydrous lanolin, } each, enough
 American vaseline, } to make..... 150 grains.

M.

He uses also an ointment of half this strength. In gonorrhœa of the vulva he employs iodoformal as a dusting powder. He reports rapid cures of gleet by means of twenty-per-cent. bougies of iodoformal with gum arabic and glycerin. The advantages of iodoformal over iodoform, he says, are its weaker odor, its greater drying power, its slower solution, and its non-poisonous quality.

SCIATICA.

BY CURRAN POPE, M. D.

Prof. of Diseases of the Mind and Nervous System, and Electro Therapeutics in the Louisville Medical College; Consulting Neurologist to the Louisville Medical College Hospital; Consulting Neurologist to the Louisville City Hospital; Prof. of Hygiene in the Kentucky Military Institute; Formerly Resident Physician to the Anchorage (Insane) Asylum; Member of the American Medical, American Electro Therapeutic Central and North Eastern, Kentucky Medical Associations; Kentucky State Medical and Mitchell District Societies; Fellow of the Louisville Academy of Medicine and Superintendent of the Curran Pope Sanatorium.

Aleck Green, aged 50, laborer. Has been troubled with this affection off and on for seven or eight years. Four or five weeks ago he began to develop his old symptoms again, with gradually increasing severity—a pain commencing in the left lumbar region, extending down into the left sciatic notch, following the posterior aspect of the thigh and leg in the region of the sciatic nerve.

His family history reveals that his mother died at the age of 35 of pulmonary tuberculosis, while his father died at the age of 55 of some rectal trouble, probably cancer.

During his infancy he suffered from the usual children's diseases. His life has been a healthy one he says, except for several attacks of rheumatism. He has been moderate in the use of alcohol, but excessive in the use of tobacco. Pulse is 70, irregular. Says that he has been told by doctors that he has a tobacco heart. Let a man that has been excessive in the use of tobacco develop any heart trouble, and he is apt to be told that he has a tobacco heart. Thirty years ago, or at the age of 20, he had an attack of specific disease. During his youth he suffered a good deal from frontal headache, but has none now. Owing to the pain and discomfort of the affection he has great difficulty in sleeping; the sleep is very irregular; the insomnia of pain. He has a very good constitution, and, generally speaking, has not been nervous; the only time he is nervous is during this disease.

He says that in sitting or lying down the pressure induces a numb, aching feeling upon that side, but in walking he feels very much more comfortable. He has had no digestive troubles. His appetite is good, although he has difficulty in chewing on account of defective teeth. His tongue is firm, pale in the center with red edges, has a light brownish coat extending all over it, probably produced by the use of tobacco.

Coming back again to the pain, we find it is located on the left side, that it starts in the lumbar region, runs, as I told you, into the sciatic notch, and down the posterior aspect of the thigh and leg along the course of the sciatic nerve. He says the pain is located deep down near the bone; that it is a numb, dead, burning, aching pain rather than an acute pain; that this pain lasts, without remission, until he is relieved of it by treatment; that the pain gets worse for a while after he is in bed; when he begins to get thoroughly warmed up in bed the pain lessens and finally decreases, and after lying in bed for a while he drops off to sleep, from which he is awakened from time to time by its recurrence. There are no shooting pains.

He has frequent accessions of severe pain, lasting from a few minutes to half an hour. In moving you will notice that he has a good deal of difficulty in lifting the left leg—more than he has in lifting the right leg—owing, he says, to the pain. The reflexes are present on both sides and re-enforcable. There are painful points over the sciatic nerve.

We have the case of a man giving the history of repeated attacks of rheumatism. The present disease commencing five or six weeks ago, limited to the left side, and occurring within the region of the sciatic nerve, with the presence of reflexes, with no loss of control over the bladder and rectum, with no shooting or lancinating pains.

The trouble is evidently sciatica. In neuritis the pain would be greater; there would be greater difficulty in walking, some anesthesia and possibly degenerative reactions; there would be more relief on rest. This case is suffering from sciatica of rheumatic origin.

I want to dispossess your mind of one thing. Because a man happens to have had syphilis, that is no reason whatever for you to at once assume that the affection is syphilitic. Syphilitic affections as a rule have a certain well defined type, and of that you must become aware. Syphilitic troubles rarely affect the peripheral nerves as compared to the rheumatic or lithic affections. We know on the contrary, that within the bony structures, within the spinal canal and within the cranial vault, specific troubles are far more common.

I wish to call your attention to a few points in regard to this disease. It is one of the troubles that is more frequent in the gouty rheumatic or arthritic diathesis. Of exciting causes, exposure and muscular strain have, in my opinion, been the most common. Costiveness is nearly always a feature of the case, and unless corrected causes the trouble to persist. Pain is the principal symptom, it is present nearly all the time, and is subject to periods of great exacerbation. Between these times there is a burning dull pain, and frequently a tingling numbness in the leg. This condition is one of chronic perineuritis, though it is commonly called neuralgic. The prognosis is good; nearly every case recovers in from two to six months, although I have seen several cases in my private practice recover in from four to six weeks but this is rare.

TREATMENT.—What shall we do for this case? I will put him on full doses of Henry's Tri-Iodides, directing him to take 20 drops, well diluted with water, every three hours, gradually increasing the dose until a drachm is reached, or until Iodism is in evidence. In private practice we would not only utilize medicinal treatment as outlined with the Tri-Iodides, but if it were in the acute stage, we would at first administer a laxative and obtain free and full results. The patient would be kept in bed, and the leg bandaged to a splint. The bandage would be removed twice a day, and massage gently but firmly given.

Galvanism certainly possesses undoubted value in these cases, but large currents should be used if results are desired. The foot should

be placed in a copper pan, to which the positive pole is attached, and containing water to the depth of one inch. The negative pole should be a Sanders' pad, placed on the lumbar region; a current of from 25 to 60 M. A., must be used for 10 to 15 minutes. Liniments are of practically no value. In chronic cases that have resisted medication the following plan has yielded me nice results. Mechanical massage is applied for 10 to 15 minutes to the entire body, especial attention being paid to the back, side and the leg affected. This is followed by drawing the heaviest possible Static Sparks from along the course of the sciatic nerve, the lumbar region and the spine. Temporary relief is at once obtained, but the treatment must be kept up for at least four, six or eight weeks if permanent results are desired. The inter-paroxysmal period should be marked by careful attention to the laws of health, free drinking of water, and occasional courses of Tri-Iodides and Salicylates. Hydrotherapy in the shape of hot air, vapor, rain baths and douches may be used to counteract the under lying arthritic trouble. By their use elimination is favored and a normal nutritional state induced.

SOME INSTRUCTIVE CASES OF APPENDICITIS.*

By H. A. HARE, M. D.

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In this brief paper I desire to bring to the attention of the Society several cases of appendicitis which seem to me to possess more than ordinary interest.

The first case is that of a man of about 19 years who came under my care for a sharp attack of abdominal pain, which was not referred to the region of the appendix, but half way between the ensiform cartilage and the navel. He gave the history of no less than nine such attacks in the previous six months, some of them so severe that morphin had to be given hypodermically. In none of them had the pain been appendicular in character. As soon as his abdomen was bared it was seen that a swelling was present in the right inguinal region, of considerable size, and though this swelling proved on palpation to be but slightly tender it was very hard and resisting. Even when the somewhat rigid wall above was relaxed, the mass remained hard and brawny under my fingers, and was so large and dipped down so deeply that its borders could not be accurately determined. The possibility of malignant growth seemed to be excluded by the age of the patient, by the state of unimpaired general vitality, and by the history of the attacks, which were usually associated with some nausea and vomiting, and the general typical symptoms of the disease appendicitis. The diagnosis was that of recurrent appendicitis with great thickening and deposit of inflammatory exudate about the appendix, and perhaps about the entire caput coli. In other words, there had been several attacks of acute

*A paper read before the Philadelphia County Medical Society, March 9, 1898.

appendicitis with surrounding exudation due to the attacks, and a chronic inflammatory process between the attacks. These large masses of exudate made it evident that an operation would be difficult and almost impossible of good result if performed during the acute attack, and nothing was said to the patient about operative interference. When the attack which brought him to bed passed by, he refused operation, but after being impressed with the fact that nine attacks in six months indicated the speedy development of others, and that in any one of these a fatal result might ensue, and on the concurrent advice of one of our most able surgeons he at last consented to the operation, much against his will. At the operation, performed in the period of quiescence, the appendix was found greatly enlarged and thickened, and surrounded by a mass of exudate. It was removed with some difficulty, but with no serious damage to surrounding tissues. The operation was well borne, but within 24 hours nausea followed by stercoraceous vomiting ensued and the patient speedily died. There were no other signs of obstruction, and the patient so quickly went into collapse that nothing could be done for his relief. I still think that my advice was good theoretically and correct so far as human foresight could perceive, but practically the man would have lived longer if he had not consented to the operation at my urgent advice.

The following case is, in some respects, the opposite of this. A man of 55 years had had, at intervals of six months, two attacks of violent abdominal pain and all the other symptoms of acute appendicitis. His last attack occurred two months before I saw him, when he came from a western city for advice as to operation. He saw, with me, two surgeons of high repute, who, in their examination, found some tenderness but no marked induration. As he was forced by his employment to be constantly travelling through small towns, he feared an attack when away from home and competent skill, and, while naturally not desirous of operation, was willing to have it performed, if recurrences were thought probable. One surgeon advised operation as a prophylactic and curative measure, the other and myself agreed that it would not be necessary. This was four years ago, and there has been no sign of a third attack, the patient being perfectly well.

The third case was that of a man of 38 years, who, six months before I saw him, began to have severe pain in the right inguinal region. Usually, he had a paroxysm of pain about every week, and sometimes more frequently. The pain was sharply localized, and the appendicular spot of McBurney was exceedingly sensitive, when the patient was examined, although no attack of pain had been present for a week. He had lost ten pounds in weight since the attacks began, but his appetite was good, although he was constipated. He was treated by absolute rest and a careful diet, his bowels were regulated, and he had no attack for nine days previous to leaving my care. The tenderness disappeared, and he did also, so I cannot

report on his subsequent history, but, in the light of the first and second cases, I am glad I did not urge operation. An interesting point in his case was an entire absence of fever in the attack he had while under my care.

The fourth case was that of a woman of 48, who was seized in the middle of the night with agonizing abdominal pain situated in the epigastrium and left inguinal region or between it and the middle abdominal line. I saw her at her house eight hours after the pain began, and found her still suffering greatly, but without agony. She had all the classical symptoms of appendicitis, vomiting, pain, exquisite tenderness over the appendix, and pressure on this point gave great pain on the corresponding spot on the left side. The pain was so well diffused that it was hard to tell where the most pain was felt. The belly was scaphoid and somewhat rigid. The appendicitis was so acute that I did not dare to advise against an operation, and the weather so hot, and the patient so feeble, that I did not care to advise it. A well known operator suggested operation, and then, as I did not like to oppose my views to his, I called in another medical consultant, who agreed that while an operation was strongly indicated by the condition of the appendix, the hot weather, and the feebleness of the patient was a greater danger when added to the effects of operative interference. The operation was not done, the patient was treated generally and locally by proper methods, and recovered in about three weeks. This was in June, 1895. Since then there has been no return of the trouble in any way, and I am glad for a third time that the knife was not used.

The fifth case is that of a woman of 33 years, who, between January 1st and May 15th, had four attacks of appendicitis, each of greater severity than its predecessor. An operation during each attack had been refused, and also between the attacks, on the ground that the risk of another attack would be taken. When the attack in May came on, it was so evidently an operative case that operation was insisted upon, and was performed at once. It revealed an abscess at the tip of the appendix of about one dram and the abscess wall was ruptured in its removal. The wound was, however, carefully cleansed, and all pus apparently removed. The patient then progressed favorably for two weeks. The wound healed by first intention, and all seemed well, but there was no gain in strength. Fever now began to assert itself, and gradually became more and more marked, so that the chart resembled that of intermittent malarial infection. The old wound showed no sign of infection, the blood no evidence of malaria, and there was no history of malaria. The wound was then opened and found healthy, and was closed. Still, the fever persisted, and there was loss of weight. Finally, the wound was opened a second time, and to the site of the appendix, and everything seemed normal. The fever persisted, but no sweats appeared, nor were there any chills. Six weeks after the operation, pain in the abdomen became severe, the fever suddenly became

accentuated, and the patient became partially collapsed. An examination of the abdomen now revealed, for the first time, a marked swelling in the right inguinal region, and evidences of peritonitis were marked. An operation was advised as the only resource, but, after the belly was incised, the patient so nearly died on the table, that it had to be given up. Death occurred two days later, and at the post mortem a large abscess of the right ovary and tube were found, with general peritonitis therefrom. Infection of these parts had evidently occurred from the ruptured appendix, as the woman was unmarried, and a virgin. The delay of operation in this case, till the abscess was ready to rupture on the slightest touch, ultimately caused death.

The sixth case is that of a man of 40 years, very stout and of heavy build, who was seized in the night with excruciating pain in the groin and throughout the whole belly. When seen by me six hours later his belly was already swollen and tense or rigid. His pulse was rapid but otherwise good. The belly was exquisitely tender. Operation was insisted on and was performed in an hour. The appendix was found gangrenous at its tip. He promptly recovered and the interference saved his life without doubt.

The seventh case, and the last, is as follows:

December 26, 1896, I was called to see R. L., aged 10 years. I found him suffering from a moderate degree of pain which was situated in the right iliac region. He was in bed, had a coated tongue, and a temperature of $101\frac{1}{2}^{\circ}$ F.

The history was that he had been taken during the night with several paroxysms of fairly severe pain, and had had several that morning. A week before he had gone to bed he had had some nausea and gastric disturbance, probably due to intemperance in diet. Cross questioning revealed the fact that during that week he had also had considerable pain in the bowels, although by no means so severe as at the time he was first seen by me. Not only was there marked tenderness over McBurney's point, but, as I have frequently noticed in such cases, the patient complained of a good deal of pain in the neighborhood of the transverse colon; but placing a hand under the flank, or in other words, behind the appendix, seemed to reach the tenderest spot of all. On that evening I asked his relative, Dr. Howard Kelly, to see him in consultation, and it was decided that the best thing to do was to insist upon perfect rest and a liquid diet and no medicine.

On the following day the pain was about the same, and the rigidity of the belly-wall was equally marked. As he had been freely purged on the 25th by magnesium citrate and cascara sagrada it was thought wise to give him no purgative.

On the morning of the 28th the swelling and tenderness in the right iliac region was increased, and the pain was stated by the child to be considerably worse. Another consultation with Dr. Kelly was asked for, and he decided that Rochelle salt had better be freely

given. This was done, but, after the third dose of a teaspoonful, vomiting took place; castor oil was then substituted, and two hours later two free movements of the bowels ensued.

The temperature during the 27th and 28th was about 99 morning and evening. On the morning of the 29th the pain seemed to be slightly relieved for a time, but the tenderness on palpation was quite as marked as ever, and the boy stated that the pain was returning as the hours passed by.

It was determined that it would be wise to operate for appendicitis. An operation was performed on that day (Tuesday) by Dr. Kelly, assisted by Dr. C. P. Noble and two of Dr. Kelly's assistants from Baltimore. The appendix was found markedly inflamed, but contained no pus. There was a slight peritoneal hyperemia all around the area of the neighborhood of the appendix. The boy did very well after the operation, his temperature did not rise above 99½, vomiting was very slight, and the case progressed without any point of interest in connection with it for a period of ten days.

On Monday, January 10th, however, he was seized with violent pain in the belly which, on examination, was found to be neither scaphoid nor swollen, although it was tympanitic on percussion. Pain was exceedingly severe, and seemed to have its greatest point of intensity in a line drawn between the nipple and the anterior superior spine to the right of the umbilicus. At this point it was thought on careful examination that there was a sensation of increased resistance. The pain continued for 24 hours, notwithstanding the administration of 1-16 of a grain of morphin, which gave him considerable relief for a short time. His temperature remained about normal.

On the second day, however, retching and vomiting became a prominent symptom and, although not constant, occurred with sufficient frequency to be considered a grave symptom. He was unable to pass anything by the bowel from the time the attack began, but no food had been given him which could in any way have produced intestinal complication. Repeated rectal injections failed to bring any result, except on one occasion when a slight quantity of wind was passed.

In view of his grave condition it was decided two days later, on Tuesday, the 12th, that something must be done for his relief, and after consultation between Dr. Edward Martin, Dr. Kelly and myself it was decided that the boy should be etherized, inverted and that copious intestinal irrigation should be resorted to. At this time the boy was vomiting small quantities of liquid of a coffee-ground or grumous appearance, mixed with streaks of bright colored blood, and there was marked abdominal distention. One and a half quarts of warm saline solution having been injected into the bowel without reducing the obstruction, the boy was placed upon the operating table; after the liquid had drained out by means of a rectal tube, Dr. Kelly opened the abdomen half-way between the umbilicus and his

earlier incision for appendicitis. A small quantity of liquid was found in the abdominal cavity, there was evidence of slight peritonitis, and two large knuckles of gut were found adherent to the abdominal wall producing intestinal obstruction by preventing peristaltic movement. These bands were broken up, the wound was closed and the child put back to bed in fairly good condition, considering the gravity of his case. Twenty-four hours after the operation the bowels were freely moved and a considerable quantity of fecal matter passed.

The case recovered from the operation very well indeed, and was kept on a strict liquid diet for a period of four or five days. His temperature during this period was never febrile, but he suffered from time to time from more or less violent attacks of abdominal pain. His condition, however, steadily improved until Tuesday, February 2d, when I was called at 4:30 A. M., because he was suffering violent pain, which was not relieved by a hypodermic of morphin given at 6 the previous evening. I found him suffering from excruciating abdominal pain, a tense and rigid belly and some slight nausea. The boy had had no movement since the morning previous; 1-10 of a grain of morphin was given hypodermically, repeated at 9 the next morning without giving him material relief. I immediately telegraphed for Dr. Kelly, and after a careful examination it was decided that he had about one and a half quarts of liquid in his abdominal cavity, and that there were evidences of adhesions obstructing the intestines. In view of the gravity of a third operation it was decided by Dr. Kelly, Dr. Martin and myself to take the risk of waiting 24 hours. At the end of that time the various rectal injections having failed, another one was given with the result that he passed a large amount of fecal matter and suffered no more pain. Convalescence was progressively established, and the boy was considered as cured Friday, February 19th, although at that time there was still present, as there had been from his first getting up, February 10th, slight impairment of power in the lower extremities (partial paraplegia).

The case is one of interest because of the frequent complications and the gravity of each one.

These cases, which are taken as types from a larger series, illustrate the fact that the physician takes a grave responsibility if he urges an operation, perhaps as grave as if he opposes it; that he cannot afford to leave a decision as to the wisdom of operation entirely to his surgical colleague, and finally that cases of appendicitis often get well and remain well, or, in other words, all cases do not need an operation either for immediate relief or for the prevention of other attacks. On the other hand there are cases which are so fulminating in character that an hour's delay of operation is dangerous, and I am inclined to believe that the cases of early fixation of the body and belly muscles and without much temperature disturbance need operation more than those in which the pain is greater, more continuous, and more severe on pressure.

OPHTHALMIA NEONATORUM.*

By L. WEBSTER FOX, A. M. M. D.,

Professor of Ophthalmology in the Medico-Chirurgical College of Philadelphia.

Ophthalmia neonatorum is one of the most prolific sources of blindness among the human race to-day, because physicians do not appreciate the gravity of the disease. However, the general practitioner, as well as the obstetrician, is giving the subject more consideration at the present time, and every precaution is being employed to prevent this dreaded disease. The statistics prove that the disease is preventable and can be easily cured if taken in time.

Noble as is the work of allaying suffering, the prevention and restriction of disease is still more commendable of the highest aspiration of medical skill. I do not wish it said of one of you that a little child gropes in the dark because of your negligence or that the requisite information has not been imparted to you to prevent or battle with this disease at its commencement. I shall endeavor to make my lectures on this subject very impressive, and rightly so; and I beg that each of you give especial attention, even though you do not anticipate making a specialty of ophthalmology. In this disease the general practitioner may be of the greatest aid; it is here his services will be most appreciated.

The disease is caused by the introduction into the eye of the child of secretion from some part of the genital tract of the mother. It is a well-known fact that during pregnancy there is more or less discharge from the vagina. The virulency may be derived from two sources; first, to a pre-existing gonorrhœa or, second, to chronic leucorrhœa, which may be divided into two conditions.—primary and secondary. The former occurs on the second or third day after birth; the latter occurs from the tenth to the twelfth day after birth and is less serious. The former is due to the transmission of the gonorrhœal virus (?), which takes place at birth, usually when the eyes are first opened. Examine the secretion under a microscope and you will find the gonococcus of Neisser. The secondary cause may be due to a leucorrhœal discharge, which, if taken in time, will yield to treatment. I believe that in almost every case where the cornea of the child breaks down in from three to six days there was a pre-existing gonorrhœa of the mother. In all cases where this belief was confirmed I found a breaking-down of the cornea, and in those cases where we had profuse discharge and the cornea escaped we had only to deal with a chronic leucorrhœa. But ophthalmia neonatorum due to leucorrhœa, if allowed to go on without treatment, may cause a breaking-down of the corneal epithelium; nay, may even invade the tissues and produce nebula of the cornea.

The first evidence of ophthalmia neonatorum is a tear-drop in the inner canthus of the affected eye. Usually but one eye is affected at a time. The secretion, if examined closely, is very much like mucil-

*A clinical lecture delivered to the senior class of the Medico-Chirurgical College on October 29, 1897.

age or gum arabic, and appears during the first twenty-four hours. At the end of the second day this fluid has changed to a mucopurulent one, and by the third or fourth day a copious flow of pus. There are other causes than those named that lend their influence in inciting inflammation; a weak constitution, lack of cleanliness, change of temperature, and inadequate nourishment are agencies that may quicken the attack and lead to serious consequences.

TREATMENT.

Prophylaxis.—Disinfection of the vagina previous to labor. There is no disease in which the strict accomplishment of prophylactic treatment affords more gratifying results than in ophthalmia of the newborn. Because of the frequency of these cases and the fact that trouble arises from most unexpected quarters it is the duty of the physician to suspect all cases whether there is any discharge or not. As soon as a woman discovers that she is pregnant and has leucorrhœa, let her, not only bathe the vagina, but also syringe daily, that the inner wall may be more thoroughly cleansed with an astringent wash of some well-known formula. The environments must be hygienic and all contagious diseases must be precluded. If there is any suspicion that the secretion is purulent it is the duty of the obstetrician to render the vagina, as far as possible, aseptic. Thorough vaginal irrigation with antiseptic solutions should be carried out regularly, and more frequently with the approach of labor.

As soon as the child is born take a piece of clean linen or absorbent cotton and wipe both eyes carefully to prevent contamination acquired during its passage through the vagina; then bathe the child, being careful that the water from the bath does not come in contact with the eyes. Drop into the eye 1 or 2 drops of a 2-per-cent. solution of nitrate of silver (Crédé's method). I would advise that this method be carried out though there be no discharge of the mother, as this solution is mild and only produces a smarting sensation. The solution spreads over the eye and destroys any germs which may find lodgment in the epithelium. If the above drug be not at hand at the birth of the child, such simple remedies as lemon, alum, or even hot water may be applied very efficaciously. Prof. Pinard, of Paris, recommends the use of lemon-juice as a prophylactic against ophthalmia neonatorum, instead of silver, being efficient, less irritating, always at hand and can be handled without harm. In addition to the Crédé treatment I would suggest a mild astringent wash for the eyes during the first week, namely:—

℞ Acid borici,.....	
Sodii chlor., of each,.....	gr. xx
Mucilag. sassafras med.....	3ij
Aq. camph.....	
Aq. destil., of each.....	3ij-M

The remarkable results which attended Cr  d  's introduction of this method into his institute at Leipzig, in 1880, led to its adoption in most of the maternity-hospitals throughout the world. It is now regarded as the treatment surpassing all other treatments for the prevention of ophthalmia neonatorum. It has diminished the prevalence in the lying-in hospitals from 10 per cent. of all cases of confinement to less than 1 per cent.

The need of prophylaxis is more impressive by the fact that 70 per cent. of all who become blind during the first year of life owe their affliction to this dreaded disease. Fuchs says "that in the asylums of Germany and Austria those who are rendered blind by blennorrh  a (ophthalmia) neonatorum form more than a third of the whole number."

This infection is more frequent among the poorer classes, where the laws of hygiene and cleanliness cannot be observed, either before or after birth.

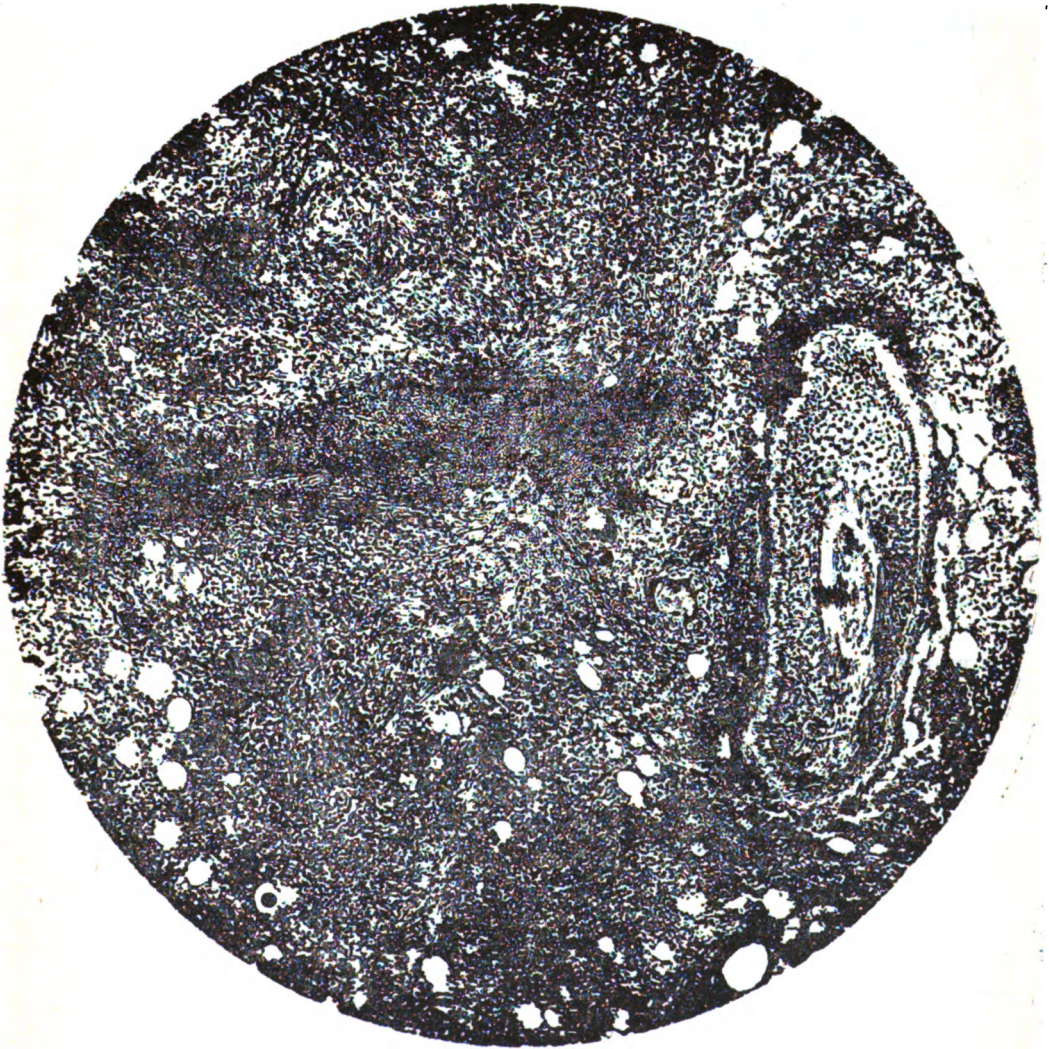
Active Treatment.—Treatment depends largely upon the character of the infection. The chief danger attending this disease is to the cornea. If the cornea should ulcerate apply a 5-grain solution of silver to the conjunctiva, and follow this with sublimate solution of 1 to 2000. All pus should be wiped away from between the lids with the sublimate solution applied to a cotton swab. Anoint the edges of the lids with the yellow salve (hydrarg. ox. flav., gr. $\frac{3}{8}$: ung. petrolei, $\mathfrak{3j}$). The *cul-de-sac*, up and about the retrotarsal fold, must be thoroughly irrigated, which is best done with an hydrostatic eye-douche. If the circulation and nourishment of the cornea is impaired, after the fourth or fifth day apply a solution of eserine sulphate, gr. $\frac{1}{4}$, to aq. ros  e, $\mathfrak{3j}$, in addition to the above treatment, when a decrease of suppuration of ophthalmia will be marked. The eserine may be safely used earlier in the disease.

If the patient is placed on treatment while the cornea is intact it can be preserved in a healthy condition. Many ophthalmic surgeons approve of the instillation of atropia, yet I have failed to see one cornea saved after the cloudiness appeared. When the conjunctiva becomes thick and velvety, apply a stronger nitrate-of-silver solution. The conjunctiva may even be sacrificed and applications of sulpho-carbolate-of-zinc lotion or even the silver solution (5 grains to 1 ounce) applied.

Many countries have enacted laws for the prevention of ophthalmia neonatorum, placing it among the contagious diseases. Switzerland, in 1865, was the first country to enact this law, followed by France, Austria and Prussia. In America the following States have passed corresponding enactments: New York, Maryland, New Jersey, Minnesota, Ohio, Missouri, Connecticut, Rhode Island and Maine. By this means the serious character of the disease is brought before the public, leading to the better education of nurses and midwives in the treatment and management of these cases.

The latest statistics of England and Scotland show that more than five thousand alive were blind from this preventable disease. Comparing medical practice twenty years ago with that of to-day the number of cases of ophthalmia is much less at the present time and the cases not so malignant.

This legislation is desirable, not only from a humane, but also from an economic stand-point. A large percentage of the blind population of Pennsylvania, due to this infection, are a care upon the State, because of a non-prevention of this disease. The vast amount of expenditure exacted of the State, if for no other reason, demands legislative measures. But more important still is the consequence of this disease from a humane view. Hundreds of lives darkened with this affliction, the gravest of all misfortunes, should speak eloquently in favor of preventive legislation.



MICROSCOPICAL SECTION OF TUBERCULAR ULCER

Georgia Journal of Medicine and Surgery.

EDITED BY

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PHOTO-ENGRAVINGS to illustrate accepted articles will be made free of charge, if proper drawings or negatives accompany the manuscript. Electrotypes of such cuts furnished at cost.

PHYSICIANS' WANTS, ETC.—A department will be devoted to the free publication of subscribers' wants, practices for sale, change of location, etc.

SECRETARIES OF MEDICAL SOCIETIES will do us a favor by keeping us informed of dates of meetings of same, etc.

THE FORTY-NINTH ANNUAL MEETING OF THE STATE MEDICAL ASSOCIATION.

Before the next issue goes to press the Georgia Medical Association will have met and finished its deliberations. As this Society is composed of delegates from the County and other Medical Societies all over the State, it will be truly representative in every sense of the sentiment, aspirations and wishes of the great majority of the medical profession of the State. It is the mouth-piece of the profession, and ought to possess power, dignity and influence, both with the legislature and with the community at large, of that great body which it represents. As it deliberates, as it acts—so will the medical profession of this State be judged, and a new era of unity, prosperity and usefulness will dawn for medical men in this State. But, if selfish, cowardly, personal or factional intents, vacillating action or vulgar political intrigue dominate their deliberations, we will rapidly decline in public esteem to the level, both socially and in the body politic, of the butchers, caterers and other tradespeople, who are both useful and necessary, but neither a pretentious nor very elevated class in the community.

The united voice of this meeting should be heard by our legislators in such a way as to secure better legislation. Why should we have but one board of examiners?—"Regular Board of Medical Examiners,"—and if Eclectics and Homeo Quacks, Osteopaths and

Christian Scientists desire to practice in Georgia, compel them and all others to pass a rigid examination, before being turned loose upon an unwary and unsuspecting public.

The following is a partial list of papers that have been promised.

1. Treatment of Typhoid Fever. Wm. J. Cox, M. D., Barnesville.
2. A Report of Surgical Cases. Hunter P. Cooper, M. D., Atlanta.
3. Malarial Asthenopia. J. Lawton Hiers, M. D., Savannah.
4. Diphtheria Antitoxin with Report of Cases. Henry R. Slack, M. D., LaGrange.
5. Solid Tumors of the Ovary. Virgil O. Harden, M. D., Atlanta.
6. Puerperal Eclampsia and some Probable Causes of it. J. I. Griffith, M. D., Danielsville.
7. Hysteria. A. A. Davidson, M. D., Augusta.
8. Femoral Hernia, with Report of Cases. Floyd W. McRae, M. D., Atlanta.
9. Primary Sarcoma of the Orbit, with Cases. Alex. W. Stirling, M. D., Atlanta.
10. Mushrooms, a Food and a Poison. W. H. Elliott. M. D., Savannah.
11. The Indication for and Antiseptic Technique of Uterine Drainage after Labor and Abortion. R. R. Kline, M. D., Atlanta.
12. A Rare Form of Bone Atrophy following an Ununited Fracture, as seen by the X-Ray. Eugene R. Corson, M. D., Savannah.
13. Surgical Treatment of Hemorrhoids. Wm. S. Goldsmith, M. D., Atlanta.
14. A few Cases from my Note-Book. J. G. Hopkins. M. D., Thomasville.
15. The Possibilities of a Perfect Aseptic Surgical Technique. E. C. Davis, M. D. Atlanta.
16. Diphtheria, its Present Status and Treatment. B. C. Powell, M. D. Villa Rica.
17. Shall Georgia have a Medical Law Pertaining to Marriage Contracts? J. Chestnut King, M. D., Newman.
18. Tonsillotomy, When and How to Make It. J. M. Crawford, M. D. Atlanta.
19. A Georgia Incubator. W. P. Williams, M. D., Blackshear.
20. Some Remarks on (a) Appendicitis (b) Hernia. W. F. Westmoreland, M. D., Atlanta.
21. Chronic Diarrhea as an Entity, with Report of Cases. T. M. Greenwood, M. D., Mineral Bluff.
22. A few Remarks on the Treatment of Post-Nasal Adenitis. M. F. Carson, M. D., Griffin.
23. The Physician. J. S. Wimberly, M. D., Sunlight.

24. The Endoscopic Treatment of Chronic Urethritis, with Report of Cases. W. L. Champion, M. D., Atlanta.

25. Antitoxin in the Treatment of Diphtheria. D. L. Bridges, M. D., Ellaville.

26. Adenoids in the Pharyngeal Vault and Their Influence upon the Ear. A. W. Calhoun, M. D., Atlanta.

27. The Deadbeat vs. the Doctor. W. J. Rowe, M. D., Buford.

28. Report of a Case of Poliomyelitis. W. L. Patten, M. D., Milltown.

29. Some Pathological Investigations. Chas. M. Blackford, M. D., Augusta.

30. (Title to be furnished.) S. Latimer Phillips, M. D., Savannah.

31. Alcoholic Irrigation in Puerperal Sepsis. Geo. H. Noble, M. D., Atlanta.

32. The Importance of Careful Chemical Analysis in Gastric Disorder. Wm. Clifton Lyle, M. D., Augusta.

33. Tight Lacing—Its Relation to Uterine Development and to Diseases of the Female Organs of Generation. W. E. Fitch, M. D., Savannah.

TO THE MEDICAL PROFESSION.

It has been intimated that maliciously disposed dealers when interviewing the medical profession have stated that GUDE'S PEPTO-MANGAN is placarded on walls, fences, etc. The intention of such an assertion is evident, and is false in every particular.

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EDITOR'S TABLE.

The Philadelphia Medical Journal is, without question, the largest, cheapest, most popular, ably edited and conveniently arranged, thoroughly comprehensive, both in matter and scope, of any weekly coming to our exchange table. It is unnecessary to say to our readers that it is edited by medical men. It knows what the profession wants, and it is supplying the need. Much to the credit of its management, it plainly tells medical men that it is their duty, as well as their interest, to support their own medical journal, and demands payment in advance. We give it a hearty welcome, and join hands in the fight for a higher type of medical journalism.

The editorial and publication offices of *The North Carolina Medical Journal* have been removed from Wilmington to Winston, N. C. All communications and exchanges should be addressed accordingly. This does not apply to exchanges sent to their associate editors.

COLUMBUS, GA., March 25, 1898.

Editor of Georgia Journal of Medicine and Surgery,

Savannah, Ga.:

Dear Doctor—I have just read with some degree of surprise your editorial in the March number of the *Journal*, on *The Pure Food Law* in Ohio, and *Scott's Emulsion*. I have nothing unfavorable to say as to the individual merits of *Scott's Emulsion*, but I do say that no physician should countenance or prescribe any medicine that is advertised in the manner that this preparation is. I enclose one of their advertisements, clipped from a magazine. In this they say to the public that "it will enrich the blood of the anemic, will stop the cough, heal the irritation of the throat and lungs, and cure incipient consumption, etc." Should a physician be called and prescribe *Scott's Emulsion* the patient could say, "Why, doctor, I have been taking that." Very few if any of the doctors here prescribe it for this very reason. The advertisements they put in medical journals are quite unlike the one enclosed. I am very much opposed to much of the patented stuff that is to-day advertised to the laity with indications for use, and which is at the same time prescribed by physicians.

Very truly,

T. E. MITCHELL.

Polk's Medical and Surgical Register of the United States and Canada is now undergoing its fifth revision, and physicians who have not given their names to the canvassers are urged to send them to the publishers at once. Address R. L. Polk & Co., Detroit, Mich.

BOOK REVIEWS.

A Compendium of Insanity.—By John B. Chopin, M. D., LLD., Physician in Chief Pennsylvania Hospital for the Insane; Late Physician Superintendent of Willard State Hospital, New York; Member of the Medico Psychological Society of Great Britain, and of the Society of Mental Medicine, Belgium. Published by W. B. Saunders, 925 Walnut St., Philadelphia, Pa. Price, \$1.25. Illustrated.

The author has compiled in a condensed form a compendium of diseases of the mind, conveniently arranged for the use of physicians and medical students.

On looking through this little volume you will see that it contains a clear, concise statement of the clinical aspects of the various abnormal mental conditions, viz.: Melancholia—Simple, with Delusions, and with Delusions and Stupor. Mania, in all its subdivisions—Dementia, Paresis, Epilepsy, Feigned Insanity, &c.; together with directions as to the most approved methods of managing and treating the insane. This volume will supply a real need and long-felt want to the physician and student, inasmuch as heretofore there has been no brief manual on this important subject, and they have been compelled to search through voluminous text books for just such information as this volume contains. This book is not intended alone for the physician. Written in a clear, untechnical language, it will prove a most useful manual for members of the legal profession. We commend it to our readers and urge them to buy it.

Sexual Neurasthenia (Nervous Exhaustion), Its Hygiene Causes, Symptoms and Treatment, with a Chapter on Diet for the Nervous, by George M. Beard, A. M., M. D. Edited with Notes and Additions by A. D. Rockwell, A. M., M. D. Fifth Edition (with Formulas). Pp. 308. New York: E. B. Treat & Company. 1898. Price \$2.

The editor, Dr. Rockwell, in his preface says truly that, "the fact that each successive edition of this work has been exhausted more quickly than its predecessor, sufficiently indicate its popularity and right to live." This volume is a very valuable one, and one very much needed by all physicians who do a general practice. The book presents in a brief form the following chapters: Chapter I. Nature and Varieties of Neurasthenia. Chapter II. Evolution and Relation of the Sexual Sense. Chapter III, The Relation of Neurasthenia to Other Diseases. Chapter IV. Sexual Hygiene. Chapter V. Diagnosis and Prognosis. Chapter VI. Illustrative cases, forty-three in number, which are very interesting and quite instructive; really a clinic, covering all the types of Neurasthenia. Chapter VII. Treatment of Neurasthenia. In this edition, for the first time, the author describes the term "depolarizing" method in the treatment of neurasthenic cases. By this method the force of the positive pole is changed by the use of a cup-shaped, hollow handled electrode which, when in use, is filled with a weak salt solution, or weak solution of soda bicarbonate. This method prevents the pain and undue irrita-

tion often felt at point of contact with one of the ordinary electrodes no matter how widely separated.

The author goes into the medical treatment at some length. His favorite drugs are: hydrastis, *Epigea Repens*, *triticum repens*, F. E. corn silk, alkalies, belladonna, in minute doses, atropia, camphor, bromides and gelsemium. He says it is to be understood that these drugs, when taken, do not rush directly to the prostate gland, intelligently avoiding every other organ in the body. "Mental therapeutics has a high place in this malady; is itself a curative force, co-operating pleasantly and powerfully with whatever else we do."

Chapter VIII., deals with the diet best suited for nervous individuals. Practical is perhaps the best fitting word in which to sum up Drs. Beard and Rockwell's book, and we feel, in reading it, that they thoroughly understand the subject dealt with.

Atlas of Methods of Clinical Investigation, with an Epitome of **Clinical Diagnosis, &c.**—By Dr. Christfried Jakob. Authorized translation from the German. Edited by Augustus A. Eshner, M. D. Published by W. B. Saunders, 925 Walnut street, Philadelphia. 1898.

The first of the promised Hand Atlas has reached us; being the volume on "Internal Medicine and Clinical Diagnosis." This volume contains 260 pages of reading matter, 182 colored illustrations and 64 illustrations in the text. The plates we find exactly similar to those of the German edition, but find no fault with this arrangement, owing to their excellence. We have never seen better of their kind.

A marked improvement on the German edition is the INDEX, accurate and comprehensive.

The idea of Hand Atlas, in other words, atlases of convenient size, with colored plates and illustrations, appeals to us because of its common sense method of fixing in the mind a correct image, which words alone very seldom convey. To the advanced student these Hand Atlases are invaluable. They will be able at a glance to get more information than would be derived from an hour's study; while to the busy practitioner, somewhat in doubt of the exact lesion, for instance of some heart trouble, these beautiful diagramatic plates will act as the needle of a compass, directing him in the right direction.

There are many valuable features, such as clever diagrams, which aid the memory, the beautiful plates illustrating the various appearances of blood cells in health and disease, plates showing blood-spectra, others showing the most important color reactions of the gastric juice of the urinary tests, with plates in colors (like all the rest) demonstrating the presence of medicaments in the wine.

The plates representing the normal projection of the viscera and percutory topography are specially valuable for purposes of comparison with the numerous and valuable plates and diagrams which

follow representing in a schematic and diagrammatic manner the diseases of the lungs, heart and abdominal organs.

The explanatory text accompanying the plates is very useful, while the epitome of special pathology and treatment is thoroughly up to date—concise and brief, even to a fault, although students would probably consider it anything but that.

Taken as a whole the book is one which commends itself to practitioners as well as students, from every point of view. It reflects great credit on the publisher, Mr. Saunders, and makes one wish that the forthcoming volumes of this series were at hand. We notice that the Atlas of Legal Medicine and that of Diseases of the Larynx are in press. If they equal the present volume in usefulness and beauty the American medical public will be under great obligations to the publisher, and the gainer by his work.

Orthopedic Surgery.—By James E. Moore, Professor of Orthopedic and Clinical Surgery in the College of Medicine of the University of Minnesota. Philadelphia. 1898. W. B. Saunders, Publisher. Price, \$2.50 net.

We are much pleased with this book, for it is concise, plain and practical; each subject being carefully and yet tersely covered. The author lays much stress on early diagnosis, and has eliminated in the treatment that which is of probable good, and clings to methods and modes of treatment that his large experience has proven of value. The author's conservatism does not sacrifice thorough work, and it is to be commended. The work is freely illustrated from original photographs, and is in every sense an excellent one, and contains all that is important for the practitioner and student.

Pamphlets Received.

The Operation Itself in Appendicitis, by Lewis S. McMurtry, of Louisville, Ky., M. D., Professor of Gynecology and Abdominal Surgery in the Hospital College of Medicine.

A New Phorometer, by John O. McReynolds. B, Sc., M. D., Dallas, Texas.

Bicycle Hernia, A Lecture by George W. Miel, M. D., Denver, Colo.

The Practical Application of Trusses. Part of a lecture delivered at the Kansas Medical College by C. H. Guibor, M. D., Topeka, Kan.

On the Parasites of Malarial Fever, by William Sidney Thayer, M.D., Associate Professor of Medicine in the Johns Hopkins University, Baltimore, Md.

Exercises and Carbonated Brine Baths in the Treatment of Chronic Heart Disease, by Thomas E. Satterthwaite, Consulting Physician to the Post-Graduate and Orthopaedic Hospitals, Etc.

A Case of Combined Intra and Extrauterine Pregnancy at Term.

The former child delivered alive naturally, the latter (dead) removed by Celiotomy four weeks later, recovery, by Hubert A. Royster, A. B., M. D., Raleigh, N C.

Railroad Surgery, Operation and Recovery, by W. O'Daniel, M. D.

The Present Status of Puerperal Infection, R. R. Kime, M. D., Atlanta, Ga.

Some Practical Thoughts on the Development of the Human Race and Obstetric nursing, by R. R. Kime, M. D., Atlanta, Ga.

A Case of Hysterical Dysphagia, by Llewellyn Eliot, A. M. M. D.

The Civic Aspect of Some of the Common Neuroses, by Benj. W. Holliday, M. D.

Retinitis Pigmentosa Without the Characteristic Pigmentation—A Report of Two Cases, by George M. Gould, A. M. M. D., Philadelphia, Pa.

Law of Refraction—Change Following Increase or Decrease of Body-Weight, by George M. Gould, M. D., of Philadelphia.

Some Relations of Authors, Publisher, Editor, and Profession, by George M. Gould, M. D., Philadelphia.

King Arthers Medicine, by George M. Gould, M. D., and Walter L. Pyle, M. D., Philadelphia, Pa.

The Use of the Obstetric Forceps and the Rules Regulating its Application, by P. Michinard, M. D., Professor of Obstetrics and Gynecology, New Orleans Polyclinic; Visiting Gynecologist to Charity Hospital, etc., New Orleans, La.

The Virile or Bulbo-Cavernous Reflex, by Prof. C. H. Hughes, M. D.

Can the Dispensary Abuse be Corrected? by Llewellyn Eliot, M. D., Washington, D. C.

Antiphthisin, by Llewellyn P. Barbour, M. D., Tullahoma, Tenn,

Typhoid Fever, by John Eliot Woodbridge, M. D., Cleveland, Ohio.

Ophthalmia Neonatorum, by L. Webster Fox, A. M. D.

The Texas Screw-Worm and Its Invasion of the Nasal Cavities, by M. A. Goldstein, M. D., St. Louis.

Advanced Method in Teaching the Deaf, by M. A. Goldstein, M. D., St. Louis.

The Treatment of Pulmonary Tuberculosis with Remedies Derived from the Specific Germ, by Karl von Ruck, B. S., M. D., Ashville, N. C.

Report of 182 Cases of Pulmonary Tuberculosis Treated at the Winyah Sanitarium, Ashville, N. C., with Antiphthisin and Tuberculocidin—Klebs, by Karl von Ruck, B. S., M. D.

Implantation for a Glass Ball for the Support of an Artificial Eye and Mules' Operation for the Substitution of Enucleation of an Eye-ball, by L. Webster Fox, A. M., M., D., Philadelphia, Pa.

PROGRESS

—OF—

MEDICAL SCIENCE.

MEDICINE.

CONSUMPTION AND ITS TREATMENT.—A specific remedy against Phthisis appears to have been discovered at last.

The great majority of drugs being only active as far as the symptoms of diseases are concerned, instead of acting upon the cause of the affection, mankind has from time immemorial been endeavoring to find *specific* remedies, *i. e.*, such remedies which act upon the cause itself of a disease. But during all these centuries not more than three such specifics have been discovered: Mercury, for syphilis; quinine, for malarial fever, and salicylic acid, for rheumatism of the joints.

To these, guaiacol carbonate and creosotal have now to be added as specific remedies in phthisis; creosotal being a less pure, and therefore much less expensive, form of guaiacol carbonate.

In the current number of the "Charité-Annalen" are published the results obtained with creosotal in phthisis at Professor von Leyden's clinic at the Berlin University. In that article it is stated that the administration of creosote resulted, after some time, in affecting injuriously the digestion, appetite, and general condition of the patient. On that account the use of creosote was discontinued, and creosotal, which has none of the injurious effects, was used instead.

Creosotal was administered three times a day in doses of 5 minims, increasing by 3 minims per diem until three daily doses of 25 minims had been reached; these doses were continued for from eight days to four weeks—in some cases even for several months—after which they were reduced in the same manner to three daily doses of 10 minims. After these had been given for eight days, they were, in some cases, again increased by 3 minims per day.

Although this treatment took place in the most unfavorable winter months, the results were highly satisfactory. The general condition of the patient improved visibly; fever, night-sweats, and debility disappeared within six weeks of the treatment. The appetite increased rapidly; and even with patients to whom previously creosote had been administered by other practitioners, and who had consequently completely lost their appetite, the latter improved from week to week with the use of creosotal. The patients' weight showed a corresponding increase, in some cases as much as seventeen to eighteen pounds in three months. Exceptionally favorable results were obtained by the use of creosotal in night-sweats and fever. The coughing and expectoration gradually grew less, and finally ceased altogether.

In cases where the treatment was continued for over six months, very considerable local improvement was apparent. In these cases most of the lesions in the affected lung were healed. In many instances the physical symptoms of the disease had completely disappeared after six or eight months' treatment, that is to say, the lungs were entirely healed and had again become normal. When it is considered that in such cases, to affect complete recovery, only ten ounces of creosotal had been used, and that creosotal is retailed by chemists at about 60c. per ounce, it must be admitted that the cost of the medicament, spread as it is over several months, can be no reason why even the poorest patient should not avail himself of the beneficial effect of creosotal.

The report of Professor von Leyden's clinic concludes as follows :—“We think we must adhere to our belief in the specific action of creosotal. As a result of our observations we have come to the conclusion that, *in every case of incipient phthisis, or where the disease has not too far advanced, the patient may with advantage be submitted to the creosotal treatment*, assisted by strengthening diet, and under proper hygienic condition. But the advantage of creosotal over creosote lies in the beneficial effect of the former upon the appetite, and absence of irritating action on the stomach and alimentary canal, whereby the patient is enabled to continue to the end the prescribed dietary course.”

This experience, made at the clinic of the Berlin University, agrees with the reports of the authorities in Paris. Professor Dujardin-Beaumetz, director of the Paris hospitals, one of the most famous physicians of France, stated in his last work, the “*Dictionnaire de Thérapeutique*,” concerning the use of creosotal: *Il en résulte un progrès des plus sérieux dans le traitement de la tuberculose.*” (“The use of creosotal marks one of the most important advances in the treatment of phthisis.”)—*Health*, London.

THE FUNCTIONS OF THE STOMACH.—The great progress which has been made in the study of the chemical processes of digestion has not been attended by a corresponding progress in the therapeutics of indigestion, probably for three reasons:—

1. Because too much reliance has been placed upon pharmaceutical preparations as a means of correcting the morbid conditions of the stomach.
2. Because of insufficient attention paid to other functions of the stomach than those concerned with the chemical processes involved in the liquefaction of the food.
3. Because of neglect to consider the fact that proper liquefaction of food in the stomach requires the conversion of starch by salivary digestion as well as the solution of proteid matters by the gastric juice.

Indeed, from numerous observations made by the writer, the conclusion seems just that the failure of proteid digestion in the

stomach is much less likely, to give rise to disordered digestion than the imperfect digestion of starch. It is probably for this reason that an exclusive meat diet, the milk diet, and other dietaries excluding starch, have won so much reputation in the treatment of chronic indigestion. These exclusively nitrogenous dietaries are most successful in cases of hyperpepsia, although these are the very cases in which, from a physiological standpoint, they would seem to be least indicated.

IT IS IN HYPERPEPSIA,

also, that the inconveniences arising from the indigestion of starch are most likely to occur. The fermentation of starch is an acid fermentation. This may occur in connection with hyperpepsia, while the fermentation of proteid is hindered by the presence of an abundant quantity of hydrochloric acid in the stomach. Hence we find proteid fermentation most frequent in hypopepsia, and acid fermentation most frequent in hyperpepsia.

Professor Moritz, of Munich, in a recent lecture, made a number of interesting points, some of which are almost revolutionary in their significance. They may be summarized as follows:—

1. The digestion of animals—at least, dogs—may be maintained after the removal of the stomach, as is shown by the experiment of Czerny and Kaiser. This agrees with the observations of Noorden, Ewald, and others upon human beings, to the effect that good health may be maintained notwithstanding the existence of almost complete apepsia, the liquefaction of food in these cases depending upon the action of the saliva in converting the starch into dextrine and sugar. This change is often found to be complete in cases of apepsia, according to the writer's observation.

2. Von Mering, Moritz, and Brandl have shown by experiments that the stomach cannot be regarded as an organ for absorption, except for alcohol. Since alcohol is an artificial and not a natural product, and never intended by Nature to serve as a food, it would appear from these experiments that the stomach cannot be regarded as an organ of absorption, except with relation to morbid and toxic substances.

3. The result of this fact is that the food substances of the stomach are kept in a diluted condition, and thus prepared for an easy entrance into the intestines, and for ready absorption after their passage from the stomach into the lower portion of the digestive tract. Röhmman has observed that concentrated solutions of sugar are not readily absorbed in the intestine, and that solutions having a strength of 5 per cent. are most readily absorbed.

4. Quincke has shown that the equalization of temperature takes place readily in the stomach, and that the stomach is not much disturbed by considerable extremes in temperature, although this is not true of the intestine,—*Health*, London.

THE CHOICE OF MERCURIAL TREATMENT.—Fournier, in the *Semaine Medicale*, No. 31, 1897, gives his opinion as to the value of the

various methods of mercurial treatment. By mouth the method is simple, in the majority of cases well borne by the mouth and digestive tract, and it is moderately effective. The inunction treatment has the following advantages: It is very effective, spares the gastro-intestinal tract, and allows the stomach to receive other drugs, as iron, arsenic, cod liver oil, etc. It has these disadvantages: It is dirty and inconvenient, cannot be hidden, has unequal results because unequally carried out, and easily induces stomatitis. The daily injection of soluble mercurial salts has the following advantages: They are effective, they spare the stomach and intestines, and they thus allow other remedies to be administered by mouth. There are the following disadvantages: They produce pain and swelling at the places of injection, and, as treatment covers a long period, it is difficult outside of a hospital. The injection of insoluble salts at intervals is the most effective, but they produce stomatitis and local disturbances. In 400 calomel injections there were severe pains in three-fifths and almost unbearable pains in one-fifth of the cases. His conclusions are that the lighter cases should be treated by internal medication, the more severe by inunctions and the most severe by injections. To the latter belong the tuberculo-ulcerous syphilide, the widespread gummata, malignant syphilis, the phagedænic form and laryngitis gummatosa.

The social position, occupation, condition of digestive tract, the need of the administration of other remedies, and whether the endeavor is to cause the present symptoms to subside or to combat the constitutional poison should all have their influence in the choice of treatment; also the experience of the patient himself, if he has gone through previous treatment. For prolonged treatment the administration by ingestion is the most satisfactory, because it is simple and convenient, and in medium doses spares the stomach and intestines. The medium doses, too, are better for prolonged treatment than the larger, which cannot be employed for long periods. It produces no disagreeable effects as do the inunctions and injections, and does not effect any social or professional duties. The glossitis desquamativa is most quickly healed by injections (calomel once a week). Pregnant women and children bear inunctions better than pills. Glossitis hyperplastica, old tubercular syphilides, tertiary visceropathies and ophthalmias are better treated by inunctions.

INTERNAL SECRETION OF THE OVARY.—A Study Conducted by Drs. Curatullo and Tarulli is reported in the *Annali di Ostetricia e Ginecologia* of October, 1896, and referred to in the *Brit. Gyn. Journal*, February, 1897.

This is a clinical and experimental study of a subject of which very little is known beyond general principles. Of the physiological chemistry involved we know almost nothing beyond what the increase or decrease of certain elements in the excretions permit us to guess.

Semiramis, queen of Assyria, is said to be the first to cause the sexual glands to be removed, and Nebuchadnezzar had all his prisoners of war castrated before using them as servants. The priests of Diana of Ephesus were obliged to be castrated. Among the Christians, Valesus found a sect which held castration indispensable before becoming a priest. The Hottentots had a custom of removing one testicle to render themselves more speedy in running.

The ancients used to remove the ovaries of young girls, so that they might retain their youthful state for a long time. Aristotle, Pliny, and Galen all mention the castration of female animals, such as sows. That eunuchs were relieved from attacks of certain diseases is shown by Hippocrates, in his "Eunuchi non Laborant Podagra." The priests of Cibeles treated mania by castration. Galeno advised it, especially for leprosy, and in the 17th century it was practised for many diseases.

In our time castration of women have been extensively practised; for instance, by Kelly for severe uterine colic occurring at every menstrual period; by Lawson Tait in menstrual epilepsy, and in hystero-epilepsy, and in hysteria. Some have practiced castration to procure sterility, and to prevent reproduction of hereditary mania, and Keppler, at the 1891 Berlin Congress, advanced the idea that "matrimony with a castrated woman is the ideal type of Malthusian matrimony, and is the sole manner of practicing Malthusian without compromising the health and happiness of the parties concerned." Spencer Wells, on the contrary, has strongly decried this excessive use of castration.

Ablation of the ovaries has given good results in fibrous tumors of the uterus, before the *technique* of extirpation had been developed by Martin and others to its present state. This was advised by Battey in America, Hegar in Germany, and expanded by Lawson Tait by taking the tubes away also. and it has acted by stopping the chief symptom—the hemorrhage. But it is in osteomalacia, a disease whose pathology is still obscure, that ovarisectomy is at present attracting the most notice, but all other remedies have failed, and this seems to offer relief.—*Exchange*.

THE CHEMISTRY AND PATHOLOGY OF GOUT.—Dr. Luff, in the *Lancet* of March 29th, and April 3d and 17th, publishes the Goulstonian Lectures on this subject, summarizing as follows:

1. Uric acid is not normally present in the blood of man and other mammals, nor in the blood of birds.
2. Uric acid is normally produced only in the kidneys.
3. Uric acid is normally formed from urea, probably by conjugation of that substance with glycocine in the kidneys.
4. Uric acid is present in the blood in gout as soluble sodium quadriurate. In its soluble form it is not a toxic agent.

It deposits from the blood as sodium biurate, which acts passively and physically as a foreign body in the tissues or organs in which it is deposited.

5. The presence of uric acid in the blood in gout is due to its deficient excretion by the kidneys, and to the subsequent

absorption of the non-excreted portion into the blood from those organs. 6. Gout is probably always preceded by some affection of the kidneys, functional or organic, which interferes with the proper excretion of uric acid. The probable seat of the kidney affection giving rise to gout is in the epithelium of the convoluted tubes. 7. In certain blood diseases and disorders accompanied by leucocytosis uric acid is formed within the system from nuclein. Under such circumstances it passes at once into the blood, and is rapidly eliminated by the kidneys. 8. The solubility of uric acid in the blood is not affected by a diminished alkalinity of the blood produced by the addition of organic acids. 9. The deposition of sodium biurate is not accelerated by a diminution of the alkalinity of the blood. 10. An increased alkalinity of the blood does not increase the solubility of deposits of sodium biurate. 11. The saline constituents of vegetables exercise a remarkable inhibitory power over the decomposition of sodium quadriurate. 12. The solubility of sodium biurate in the blood is increased by the presence of the saline constituents of vegetables. 13. The solubility of sodium biurate in the blood is diminished by the presence of the saline constituents of meat. 14. The gout-inducing properties of certain wines are not due to their acidity. Probably they owe their gout-inducing action to the effect they exercise on the metabolism of the liver.—Albany *Medical Annals*.

BACTERIOLOGY OF ACUTE ARTICULAR RHEUMATISM.—According to Gazette Hebdomadaire, February 3d, 1898, MM. Triboulet and Cayon made an additional report (Soc. Med. des Hopit., January 28, 1898,) of their bacteriological observations with reference to acute articular rheumatism. On December 24th, 1897, they described a diplococcus which they had found in six cases of the disease. So that the following report represents their researches from December, 1897, up to the January meeting:

1. They found the same diplococcus as that previously described in eleven consecutive subsequent cases of the disease.

2. It is found by direct microscopical examination of the blood of patients—sometimes abundantly.

3. Hence acute articular rheumatism is a septicæmia.

4. This septicæmia may be either simple or complex, as two micro-organisms (diplococcus and a minute bacillus)—sometimes three, as one case also exhibited “bacillus Achalme”—occur in the same patient. But the diplococci occur invariably in every case and always predominate.

5. As the valvular (cardiac) lesions are caused by the diplococcus, it must be held clinically responsible for the disease.

6. Intravenous injection of a pure culture of the diplococcus in a rabbit, indeed, caused large enough vegetation on the mitral valve in twenty days to produce death by acute mitral stenosis. Histo-bacteriological examination of these vegetations unquestionably

proved that they were due to the activity of the inoculated organism.—*Verg. Med. Semi-Monthly*.

ATMOSPHERIC INFLUENCES IN CUTANEOUS DISEASES.—Dr. William Thomas Corlett, in the *American Journal of Dermatology, and Genito-Urinary Diseases*, considers the various affections of the skin apparently produced by changes of the season.

The common affections during the spring are those which arise from errors in diet. Pustular affections are also frequently encountered, because at this season the skin is moist, relaxed, and more liable to be covered with decomposing excretions, making a suitable soil for the development of pus-organisms.

During the summer the skin is at its greatest activity, heat-rash, eczematous inflammations and irritating skin-diseases are more frequently seen. Chronic affections, such as psoriasis, are usually better than in winter, except, perhaps, lupus.

In the autumn, eczema and psoriasis take on renewed life. The affections of the winter season deserve special consideration. Foremost in this group is winter-itch or prurigo hiemalis. This affection comes at the first approach of frost and disappears in the spring, and is characterized by severe itching. There are usually two paroxysms, one after undressing and another toward morning. The regions involved are those coming most in contact with the clothing.

The treatment of this disease is, first, the clothing should be moderately warm, and of a soft, smooth texture, preferably of cotton gauze or silk. Second, a soft unctuous condition of the skin should be induced. To this end, Turkish baths once a week, followed by brisk rubbing into the skin of some bland oil, are to be recommended.

The following prescription is to be kneaded into the skin morning and evening.

Glycerin.....	½ to 1 oz.
Lanolin	4 oz.
Essence Lavender.....	5 drops.

Resorcin or carbolic may be added to the above, in the strength of 30 grn. of the former; or 20 of the latter to the ounce. Internally the administration of pilocarpin sometimes gives immediate relief, and 5-grn. doses of ichthyol have been followed by good results. In obstinate cases, a change to a warmer climate is advisable.

DIABETIC COMA—ITS ETIOLOGY, SYMPTOMS, AND TREATMENT.—Dr. Thomas B. Fitcher, Associate Professor in Medicine in Johns Hopkins University, has an article with the above title in the *N. Y. Med. Jour.*

All acute terminations of diabetes associated with loss of consciousness are not identical with the diabetic coma. Thus a comatose condition may occur in diabetes as a result of (1) cerebral

apoplexy, (2) tuberculous meningitis, and (3) uremic intoxication. But excluding these cases, there is a form of coma presenting a group of fairly constant symptoms and differing from the forms just referred to.

After reviewing the numerous theories which have at one time or another been held as to the causation of diabetic coma, such as effusion of serum into the arachnoid, retention of urea, excess of ammonia in the blood, the presence of acetone, the presence of diacetic acid, fat-embolism of the pulmonary and cerebral capillaries, the author reaches the conclusion that, "according to our present knowledge, it may be definitely stated that diabetic coma is due to an acid intoxication produced by the circulation of excessive quantities of *B*-oxybutyric, and possibly also diacetic acid in the blood, these being the products of the decomposition of the body-albumins." Constipation plays an important part as a predisposing cause, and so do nervous shock and exposure to cold.

The premonitory symptoms vary in different individuals. The attack sometimes begin with maniacal excitement. More commonly, abdominal pain or headache is complained of. The rapidity of the pulse is an important prodromal sign. Sometimes suddenly, sometimes after headache, insomnia, restlessness, vertigo, and symptoms resembling alcoholic intoxication, the patient falls into a condition of somnolence, which rapidly or more slowly passes into deep coma. The patient lies quietly in bed without any convulsive movements, or at most only with slight clonic twitchings. The pupils are dilated, the eyes are half-open, or the lids are slowly raised and lowered. The pulse is slow and slightly accelerated. The temperature may at first be elevated, but later sinks far below normal. The respirations are characteristic, there is a deep, long-drawn inspiration without stridor, followed by a short expiration. A slight, gradually increasing cyanosis soon arises, due apparently to obstruction to peripheral circulation. The breath may have an alcoholic or fruity odor from the exhalation of acetone. In this condition the patient remains for from twenty-four to forty-eight hours, rarely longer, when death supervenes.

The treatment must be chiefly prophylactic, as when diabetic coma has actually set in very little can be done. If the patient has been taking carbohydrates, in considerable quantities, they must be reduced and proteids substituted, and *vice versa*. Constipation must be relieved by mild laxatives.

Von Noorden recommends large amounts of alcohol given in divided doses. To prevent fermentation processes in the alimentary canal antiseptic and antizymotic drugs should be given, such as thymol or sodium salicylate. And lastly, to neutralize the acids circulating in the blood, alkalies or alkaline waters should be administered, either by the mouth or rectum.

After the coma has set in we are practically helpless. Transfusion of blood, inhalations of oxygen, intravenous injections of solutions of

sodium phosphate, of sodium chloride, and of sodium carbonate, have proved of slight temporary benefit. A dose of castor oil and from 30 to 60 grn. of potassium citrate in large draughts of water every hour have proved successful in two cases in the hands of Reynolds. The most common method of treatment in present use is the subcutaneous and intravenous injection of large quantities of normal saline solution at repeated intervals. It is the method employed at the Johns Hopkins Hospital. It was used in ten cases. In two the patients were restored to complete consciousness, so that they would have been quite capable of making a will. Both cases terminated fatally, however. In three cases there was improvement in pulse and respiration, though consciousness never returned. In the remaining five cases no improvement was noticed [not a very excellent showing]. Von Noorden also recommends injections of camphor and ether.

ON THE NON-SURGICAL TREATMENT OF BOILS, CARBUNCLES, AND FELONS.—In the British Medical Journal of October 2, 1897, L. Duncan Bulkley, of New York, publishes a paper on this subject, and first emphasizes the important fact that patients with boils, carbuncles and felons are never in perfect health, although it is sometimes difficult to discover exactly on what particular departure from health the condition depends; patient investigation, however, will generally afford the line upon which successful treatment will rest. Iron is most commonly needed, but quite as often there will be digestive and assimilative difficulties also to be overcome. Sometimes the cause lies only in overwork or worry; often in dissipation, though of a relative harmless kind, involving late hours and irregular eating. The author cannot help dwelling as strongly as possible on this constitutional aspect of the question, for in this he finds himself at variance with much that is taught even in the best modern text-books. In them this aspect appears to be regarded apparently as of relatively minor importance compared to the local treatment, whereas he regards it as of the first importance as compared to the relatively simple local treatment about to be described, which he has found thoroughly satisfactory.

The combination of iron which he has most commonly used in these affections is one which is known to us as Startin's mixture, somewhat according to the following formula:

R	Ferri sulphatis.....	1 drachm.
	Magnesiae sulphatis.....	6 drachms.
	Acidi sulphurici diluti	4 drachms.
	Syrupi zingiberis.....	4 drachms.
	Aquæ, ad.....	3 ounces.

M. Sig.: One teaspoonful in water through a tube after meals.

Unless there is some counter-indication he generally begins treatment also with a good mercurial purge:

℞ Masse hydrargyri.....
 Extracti colocynth. co. ää 10 grains.
 Pulv. ipecac. 2 grains.

M. Div. in pil. No. iv. Take two at night and two on the second night after.

These four pills are generally repeated at the end of a week, and perhaps in other successive weeks.

Sulphide of calcium, if a perfectly fresh and good article and properly used, has in the author's experience a very decided and controlling effect over the process of suppuration. He always gives it in gelatin-coated pills, which he tests himself, for occasionally the drug will be found quite ineffective from having changed to the sulphate of lime or gypsum. To be efficient it should be given freely, one-fourth grain every two hours—say eight or ten doses in the day; this in connection with the iron tonic.

With these measures and a most careful attention to the diet and mode of life, the tendency to the suppurative process may generally be quickly overcome, as he has observed almost daily for many years.

The local treatment of the diseases under consideration which he has found very satisfactory differs materially from that commonly laid down, but can be briefly described. We will consider each affection separately:

1. *Furunculi*—The objects aimed at by the treatment are: first, soothing and protecting an inflamed area; second, exclusion of air; and third, a slight antiseptic action. For this purpose a moderately thick layer of absorbent cotton is taken, several times the size of the inflamed surface; for a medium-sized boil a piece one by two inches, with the fibers running the long way. Upon the center of the cotton a considerable mass of the following ointment is spread by means of a spatula, and this is then laid over the boil, and held in place by strips of adhesive plaster across the ends, but not passing over the boil. The ointment referred to is generally composed about as follows:

℞ Acidi carbolic..... 5 to 10 grains.
 Ext. ergotæ fld..... 1 to 2 drachms.
 Pulv. amyli..... 2 drachms.
 Zinci oxidi 2 drachms.
 Unguent. aquæ rosæ..... 1 ounce.

M. Ft. unguent.

The relief given by this dressing is often very marked; the ointment soothes and protects the irritated surface, while the layer of cotton take up any outside friction. If comfortable, and unless disturbed, this dressing remains untouched twelve or more hours, when it is removed and a freshly spread piece immediately reapplied. If there has been any discharge the surface may be very gently cleansed with absorbent cotton, but he does not allow any squeezing. In many instances with proper internal and general treatment the

boil aborts, and subsides without discharging; when this does not happen, it ruptures spontaneously in a relatively short time, and he practically never finds it necessary to incise it. This treatment he uses in all stages of boils, keeping the ointment on until the boil is quite healed. If other boils form he directs it to be applied early, and by this means they are frequently aborted. He wishes he could express in a measure some of the delight expressed by patients when thus dressed in the comfort and relief obtained, as compared with the sensations and results from other treatment which they have previously had. We should, he thinks, seek for the *jucunde* in our treatment as well as the *cito* and *tuto*, and from no small experience he can say that this treatment acts quite as quickly and surely as it does pleasantly.

2. *Carbuncles*.—As a carbuncle is in reality but a large boil, or a conglomeration of boils (with, of course, certain anatomical differences), the local treatment with the author has been much the same as that just described. Both early and late in the disease he has put on an ointment like the above, thickly spread on cotton, and fastened at the ends with strips of adhesive plaster. Not only on the back of the neck, but also on the face and elsewhere, this dressing proves most comfortable and serviceable, and he has not had occasion to incise a carbuncle since November 1882—nearly fifteen years ago. The patient died from this and other complications, but there has not been a single case with such result in his practice since. He has applied this treatment to some large and formidable carbuncles, and has always thus far found that the pus would find exit rapidly enough, and the healing progress satisfactorily with this dressing. Occasionally it is necessary to aid in its expulsion by very slight squeezing or by removal of sloughs with the forceps. On some occasions febrile and other symptoms have at times seemed to warrant more active interference with the knife, but, although urged to it in consultation, he has adhered to this plan of treatment, without incision, and has obtained results which warranted its continued employment; and from previous experiences with cutting, and from cases thus treated by others, he believes that the method suggested has the preference, both as to time occupied and final results, whereas on the point of pain and general comfort of the treatment it is far superior. He is quite prepared to admit, however, that possibly from neglect or other cause a very large suppurating carbunculous area might be formed which would demand very active surgical procedure, such as curetting, or even excision, with antiseptic dressing, but under the treatment outlined this has never occurred.

3. *Felons*.—It will no doubt excite surprise and criticism when he urges somewhat the same line of treatment for the various degrees of inflammation about the ends of the fingers which are known as paronychia, whitlow and felon; but, having treated a very considerable number of cases in this manner during the last fifteen or

twenty years, he is prepared to advocate it strongly. The cases referred to include not only those of superficial character, about the nail, but also those very deep seated, on the pulp of the finger, even when there had already been sleepless nights from the deep-seated throbbing. The ointment used here has always been the diachylon, or litharge ointment, prepared according to the formula of Hebra. This particular form of ointment he considers to be important, for he has not found such good results from that made by melting the diachylon plaster with oil or vaselin, as more recently proposed. The diachylon ointment of Hebra is prepared as follows:

R Olei olivarum optimi..... 15 drachms.
 Plumbi oxidi..... 3 to 6 drachms.
 Olei lavendulæ 2 drachms.

M. Add the oil to two pounds of water, with constant stirring; the litharge is to be slowly sifted in while it is well stirred, fresh water being added as required. The ointment is to be stirred until cold, and the lavender added.

In winter a slightly larger quantity of oil is required to make a soft ointment. When properly made (and this is difficult to secure), the ointment is of a soft, buttery consistency, and quite sticky. The affected finger is to be plunged into the jar and a considerable quantity taken up, completely enveloping the first joint to a thickness of one-fourth of an inch. Over this are placed layers of absorbent cotton, and the whole loosely bound; sometimes it is more agreeable to spread the ointment on the cotton. It is generally desirable to renew the dressing about twice daily, but this done with as little disturbance to the finger as possible, the old ointment being hardly disturbed, unless there is pus discharged.

The author cannot fully explain the benefit obtained by this dressing; but time and again he has seen the greatest relief, even after sleepless nights had been passed, and for many years he has prescribed this treatment with the greatest satisfaction and confidence. When applied early and in milder cases resolution takes place and no pus appears. But in those cases which are seen later or which are more severe pus forms and readily reaches the surface, and is either discharged spontaneously or by means of a painless prick through the dead skin. He has never had occasion to make the well known deep incision, even in certain cases where it seemed at first as if this would be required. He has repeatedly been surprised at the ease with which the pus has reached the surface. As remarked before, when it was necessary to aid its exit, this was done with a very superficial prick, entirely painless, and he has never seen any scar resulting.

It is quite possible that the most severe cases have not come under the author's observation and he quite agrees that when pus has formed deep in the tissues and is burrowing under the tight fibrous bands which cross the tendons, a free surgical opening may

be called for. But if taken reasonably early and the treatment intelligently carried out, he believes that in a very large proportion of cases the course will be such as he has before described.

SURGERY.

PYÆMIA—There are very few terms in surgery so confusing as the name pyæmia. It has been used by different authors to include all the varieties of traumatic fevers, while it is recognized that some of the symptoms are seen only in rare cases. It seems to me we can safely restrict the term to a distinct disease characterized by a state of depression common to all typhoidal conditions but distinguished by the formation of pus cavities in different and widely separated parts of the body. No tissue may be exempt. Abscesses have been found in the lungs, liver, kidney, joints, muscles, bones, brain, lymphatic glands; coagulability of the blood is diminished, and there is leucocytosis with purulent effusions into the serous cavities. The disease is contagious, being communicable by instruments or sponges in the hands of the surgeon or other attendant, and passes along the vascular or lymphatic channels.—EDMUND W. HOLMES, in *New York Med. Jour.*

THERAPEUTICS.

THE ANTEMETIC ACTION OF ICELAND MOSS.—In the *Journal des Praticiens* there is an article by M. Degry and M. Bricemoret, of which the following is the substance:

Since the year 1673, at which time the employment of Iceland moss as a medicament was advocated by Borrichius, until the present day, the history of this plant may be summed up in a few lines. It was highly recommended and still more employed as a specific for phthisis, although it did not render in this affection other service than that of co-operating with alimentation, and yet its nutritive properties may be doubted when its chemical composition is examined.

Among the numerous works that have given any attention to the subject there are some that call attention to the fact that this moss contains a bitter substance which gives to the plant toxic, stomachic, and even laxative properties.

The authors state that they have made use of the bitter substance of this moss in the treatment of digestive troubles designated under the term atonic weakness of the digestion, and in the forms of dyspepsia that are accompanied by a certain degree of anæmia. They administered the drug not in decoction, for even boiling water dissolved only very small quantities of its principal bitter, but in the form of a tincture obtained by percolation with one part of the moss and five parts of alcohol. The results of their experiments were not all that were expected, but interesting properties of the moss were revealed, properties so remarkable that the authors have thought it useful to record the observations, twenty-five in number,

some of which are given in detail as examples of the efficacy of this drug, and their conclusion is that the moss possesses an antemetemetic property that no other drug has in so high a degree. Hysterical vomiting, however, is most rebellious to this medication. It is impossible to state exactly in what condition the best results will be obtained, for, like all other drugs, this may fail. The physiological study of this substance led Kobert to conclude that in doses of a grain and a half it would excite the movements of the stomach and of the intestines, increase the red and white globules, and stimulate moderately the central nervous system, properties which may find their employment in chlorotic subjects in whom there are loss of appetite and constipation.

ORTHOFORM.—Dr. E. S. Yonge, of Manchester, has communicated to the British Medical Journal the results of the clinical trials of the new local anæsthetic orthoform. He concludes that it will probably replace—by virtue of its insolubility and innocuousness—its relative, cocaine, when long anæsthesia on ulcerated surfaces is wished for. He says the following are the best modes for using the remedy:—

(1) The crude powder, either alone or mixed with equal parts of lycopodium, which should be accurately insufflated on to the required area, since orthoform only takes effect where it comes in contact with the abraded parts, and its influence does not extend to the tissues beyond.

(2) Pastilles, with the following formula:—

Orthoform.....	gr. iij. to v.
Liq. cocci.....	q. s
Saccharin	gr. $\frac{1}{4}$.
Glyco-gelanti.....	q. s.

The pastilles are useful in mouth, tonsillar, and posterior pharyngeal affections, but less so than the two succeeding preparations.

(3) A saturated solution of orthoform in collodion, forming a species of "varnish." This is useful in those cases in which an ulcer is exposed to much friction, but as it causes acute smarting it is advisable to primary anæsthetise the ulcer either with cocaine or with orthoform in powder.

(4) A spray, with this formula:

Orthoform.....	gr. v.
Sq. vini rect.....	m 50
Aquæ.....	m 50

This is perhaps the best form in which to administer orthoform for nasal and laryngeal ulceration. The spirit evaporates shortly after contact with the parts, leaving the precipitated powder evenly distributed over the affected area.

(5) An ointment (10 per cent.) made with any good ointment basis.

(6) An aqueous solution (10 per cent.) of the hydrochloride as a paint.

The notes on cases which Dr. Yonge give show that orthoform made it possible for patients suffering from ulceration of the mouth and fauces to swallow solid food, although previously they swallowed liquid food only with pain.

THYROID MEDICATION IN DIABETES.—The principal feature of thyroid medication is the acceleration of tissue nutrition with the habitual predominance of denutrition. To this is due its effect on obesity. It is accompanied occasionally by a slight glycosuria, amounting in Ewald's case to permanent diabetes. In Georgiewsky's experiments with dogs this glycosuria did not appear when the thyroid was administered in combination with a meat diet, but only when the dogs were fed with soups. He also states the fact that the days when there was sugar in the urine, there were less unoxidated substances than on other days, showing that the glycosuria cannot be attributed to any lack of oxidating energy. Von Noorden asserts that the internal secretion of the thyroid prevents the formation of fat at the expense of the sugar; in other words, it interferes with one of the mechanisms that regulates the glycohemias, which ingenious hypothesis deserves to be verified. This fact that thyroid medication and hyperthyroidization favor the production of glycosuria renders especially remarkable the case reported by Branthomme of an arthritic diabetic improved by the ingestion of thyroid tablets, until now, a year later, there is no sugar in the urine, and merely traces of albumin. Lépine comments upon this case, remarking that if diabetes results from deficient nutrition, then thyroid medication accelerating tissue nutrition would affect it favorably, similar to the beneficial effect attained in diabetes by d'Arsonval and Charrin with high frequency currents. De Renzi and Reale, on the other hand, have noted glycosuria follow the use of these currents, showing again the analogy between them and thyroid medication. Both accelerate tissue nutrition and thus might improve a diabetic, but more frequently they are injurious, as they stimulate denutrition to such an extent. Lépine concludes by reporting the case of an obese diabetic he is treating with the thyroid medication. At first the sugar was increased, but in a few days it began to show a constant decrease. Intercurrent erysipelas interrupted the treatment, which he intends to resume later.—*Semaine Med.*

THE USE OF CALOMEL INJECTIONS IN LUPUS.—In *La Presse Médicale Belge*, Hasselberg records his experience in the treatment of lupus with calomel injections in four cases, and he believes that this method of treatment is destined to produce great results in the treatment of this troublesome cutaneous affection. The number of injections usually vary from three to twenty-five or thirty, but unfortunately no statement is made in the article as to the quantity of calomel injected at each dose; neither is there any definite statement as to the part of the body in which the injection was made.

The method of treatment is recommended in those cases which will not submit to or are not suitable for surgical interference.

THE THERAPEUTIC EFFECT OF ARTIFICIAL HYPEREMIA.—Bier (Munchener Medicinische Wochenschrift, 1897, No. 32), who for some years has advocated artificial hyperemia, as a successful method of treating tuberculous joints, has tried its effect in other diseases. Syphilitic foci of disease invariably were affected for the worse, and the growth of two sarcomata was rapidly increased. In gonorrheal articular rheumatism artificial hyperemia was almost always of marked benefit, but in acute articular rheumatism the results were variable. In chronic rheumatism and arthritis deformans the results were unequal, but generally very good.—*British Medical Journal*, Oct. 23, 1897.

DRUGS WHICH SHOULD NOT BE DISPENSED IN CAPSULE FORM.—Salicylate of sodium causes gastric disorders, with nausea and vomiting, and should therefore be administered diluted with plenty of water. Ulceration of the gastric mucosa has been observed after its use in capsule form. Antipyrin often irritates the digestive tract, and is best given in vichy or soda water. The following drugs are hygroscopic and therefore cause the capsule to become softened: acid phosphates and glycerophosphates, sodium bromide, crystallized calcium chlorate, strontium chloride, piperazin, lysidin, chloral, the dry extracts of plants, and in general those preparations produced by evaporation in vacuum. Some solid drugs when mixed tend to deliquesce—mixtures of antipyrin and sodium salicylate, for example. Certain substances, when exposed to the air, become altered or at least discolored by the contained oxygen. The chief representatives of this group are the salts of iodine, the alkalies, and the alkaline earth; also aristol. Free iodine combines with the starch of the capsule, producing a bluish-black discoloration.—*Med. Rec.*

TO CURE ITCH IN TWO HOURS.—Vleminks recommends fresh sulphuret of calcium made as follows:

R Sulphur (flowers).....	℥ iij
Quicklime.....	℥ vi
Water	℥ ij

Boil together till combined, then allow to cool and settle. Decant and preserve in hermetically sealed bottles. Application: Rub patient all over with soft soap for half an hour, then place in a tepid water bath for another half hour. Next rub over with the solution and allow it to dry on the skin for a quarter of an hour. Complete by washing in the bath.—*Canada Lancet.*

CAMPHOR AS AN ANTIGALACTOGOGUE.—Hergott (Rev. Méd de l'Est.) being dissatisfied by the effect produced by the usual antigalactogogues, including antipyrin, has tried camphor, and finds that nine and a fourth grains a day divided into three doses, and given for

three days, nearly always produce a remarkable diminution of the secretion. He has used it in thirty cases, having been first led to try it by the good results obtained by Kiener in animals, especially milch cows.—*Brit. Med. Jour.*

CAFFEINE IN HEART DISEASE.—H. M. Tickell (*The Clinical Journal*, Feb. 2, 1898,) says that in cardiac dropsy digitalis is the most useful drug, but when it does not afford relief caffeine may be of valuable service. He gives an account of a patient whose heart was greatly enlarged, and the impulse strongly marked, the apex beat being in the seventh space of the anterior auxiliary line. There were signs also of dilatation of the aorta. At the apex was a loud and long systolic murmur replacing the first sound, and heard at the back. A soft systolic murmur was present in the aorta area and subsequently a diastolic murmur was detected. Liver greatly enlarged, and extending down to within two inches of the umbilicus. Pulse 90 per minute, of "water hammer" character. Râles were present at the posterior bases of the lungs. Specific gravity of urine 1024; cloud of albumen. Digitalis was without effect, strophanthus was even deleterious, but caffeine was remarkably successful.

The caffeine was used according to the following formula :

R̄ Caffeine.....	gr. v.
Sod. salicyl	gr. iv.
Aq. ad	3j
Bis die.	— <i>Medicine.</i>

CACHETS FOR INTESTINAL ANTISEPSIS IN TYPHOID FEVER.—In the *Gazette hebdomadaire de médecine et de chirurgie* for January 27th, we find this formula attributed to Royster :

R̄ Thymol	} each.....	90 grains.
Guaiacol carbonate,		
Medicine soap.....		a sufficiency

M. Divide into thirty cachets. One to be taken every four hours.

ANESTHESIA OF THE URETHRA BY RECTAL INJECTIONS.—Morphin hydrochlorate, 15 centigrams; atropia sulphate, 5 milligrams; aq. dest., 50 grams. For external use. Two to four grams of this solution injected into the rectum will completely abolish sensibility in the posterior urethra.—M. Scharf, *Progress Méd.*, December 25.

FOR THE RELIEF OF MIGRAINE.—Excellent results are reported by Eshner from the administration in this affection of the fluid extracts of gelsemium and cannabis indica. The dose is three to five drops of each, given three times daily, until physiologic action becomes apparent.—*Medical News.*

Ergot should have no place in the second stage of labor, when there is the slightest obstacle to immediate delivery or when the fetal head is high in the pelvic canal.

Loeffer claims that menthol is antiseptic in diphtheria, and is curative if applied in ten per cent. solution.

Methylene blue applied to abrasions of the os uteri by means of a cotton probang is an effectual remedy.

SUPPOSITORIES FOR BLEEDING HEMORRHOIDS.—The following is taken from the Medical News:

R̄ Ferri subsulph..... gr. iii
 Plumbi acetat..... gr. i
 Mass. hydrarg..... gr. ss
 Ol. theobrom..... q. s

M. Ft. suppos. No. 1. Sig. Insert one suppository morning and evening.

IODOFORM AND BALSAM PERU.—A combination that is claimed to be a more effective antiseptic than iodoform alone, is as follows:

Iodoform 2 gm.
 Balsam Peru 4 gm.
 Oil of peppermint 5 drops
 Vaseline.....16 gm.

—*Ph. Post.*

NOURISHMENT BY SUBCUTANEOUS INJECTION.—Experiments made by Dr. Boppolos in Turin have given good results in the subcutaneous administration to patients of olive oil, as food. The injections are claimed to be of particular value to diabetics. The oil administered in this manner has the same nutritive value and is assimilated just as well as when taken the ordinary way. Not the slightest inconvenience is caused by the injections.—*Drog. Ztg.*

TYPHOID VACCINE.—A trial of typhoid vaccine is being made on a large scale at Maidstone, England. One of the severest epidemics of typhoid fever known is now prevailing there. The experiments are under the direction of the pathological laboratory of the state army school at Netly. Professor Wright and Surgeon-major Temple have so improved the method, it is said, that they are able to obtain Widal's reaction from the blood of the vaccinated, which is taken as a proof of immunization.

BELLADONNA IN STERILITY.—Jones, of Edinburgh, counsels not to forget the sedative affinity of this drug toward the female sexual organs, and says that the drug is followed by more or less benefit in all diseases to which these parts are liable. In married women, who, though seemingly enjoying the best of health, are yet sterile, the administration of belladonna internally for several weeks is so frequently followed by pregnancy as to preclude considering the occurrence as a mere coincidence.

A REMARKABLE DISCOVERY.—Darius Wilson, M. D., of Boston, is about to give an exhibition that ought to prove interesting, especially as he says that he does not intend to withhold his secret long

from the public, and has nothing to sell. He says: "A discovery has been made which is of greater value to the human family than any other of the nineteenth century. I have made a compound which I call methyl vapor, a teaspoonful of which inhaled will, without changing the rate of the pulse, make persons absolutely insensible to pain so that all their teeth may be extracted or any of their limbs amputated without their knowing that the operation is being performed. Only a moment is required to produce insensibility, and after the operation the patient recovers consciousness immediately. The compound is as harmless as water and as pleasant to inhale as perfumery. It can be given to patients suffering with consumption, heart disease, or any other malady without the slightest danger. It is sure to supersede the use of sulphuric ether, chloroform, nitrous oxide gas, cocaine, and all other substances or compounds for the production of insensibility to pain, all of which are not only objectionable, but more or less dangerous."—*Pharmaceutical Era*.

Dr. Vladimir de Holstein recommends creosote in the treatment of chronic constipation thinking that it acts not as a purgative but neutralizes intestinal toxins which cause paresis of the bowels. It should be given pure in water or mucilaginous liquids. The dose should be one drop daily, increased until the desired effect is obtained. Constipation is said to be overcome by this treatment and the appetite and general health is improved.

MEDICINES THAT SHOULD NOT BE PRESCRIBED IN POWDERS can be classified into: 1, those that absorb moisture readily from the air; 2, those which form a fluid in combination with other substances; and 3, those that are decomposed by the oxygen of the air and change color. In the first class belong the acid phosphates and their derivatives, the phosphoglycerates. These salts put up in powders liquefy in twenty-four hours; also sodium bromid, which is extremely deliquescent; crystalized calcium chlorid; strontium chlorid; ammoniac citrate of iron and ferri-c-potassic tartrate; piperazin and lysidin; chloral, dry vegetable extracts, and, in general, all products prepared by evaporation in a vacuum, especially, dessicated peptones and extracts of animal organs. The second group includes the substances that alone are not affected by the air, but combined, absorb moisture rapidly; such are antipyrin and sodium salicylate. The third group comprises the alkaline and ferro-alkaline iodids and the aristols. A little trick that sometimes prevents trouble is to add a certain amount of licorice powder or cinchona; also to keep the powders in an air-tight glass jar.—*Jour. de M. de P.*, February 27.

A combination of boric acid and resorcin, about 15 grains of each to $\frac{1}{2}$ ounce of ointment base, will be found much more efficacious in cases of eczema requiring stimulation than resorcin alone. The boric acid has, besides its sedative and antiseptic power, the property of reducing any overstimulation due to the resorcin. So Dr. Heller reports from Dr. Cantrell's clinic.—*Philadelphia Polyclinic*.

OBSTETRICS AND GYNÆCOLOGY.

TREATMENT OF ABORTION.—H. J. Garrigues, writing in the *Medical News* of November 6, 1897, says prophylactic measures frequently prevent abortions, as the institution of specific treatment where syphilis is the cause. Removal from a malarial district may check habitual abortions. Sometimes a uterine displacement needs correction. Rest in bed for a week at what would be the menstrual period, with teaspoonful doses of extract of viburnum prunifolium three times a day; this is a better plan than complete rest during the whole of pregnancy, which is very weakening. Violent exercise should be avoided. In threatened abortion opium suppositories, a saline, and an ice-bag to the hypogastrium may be used. If the hemorrhage is profuse or prolonged, the cervical canal open, or the ovum projects into the vagina, abortion is inevitable, and the uterus should be emptied at once. Tents and tamponading are not the best treatment. During the first three months of pregnancy the cervical canal may be dilated with conical, hard rubber dilators. Later on olive-shaped, hard rubber dilators may be used, and, if needed, Hanks' dilators. For emptying the uterus Thomas' large dull wire curette is excellent, except at very early periods, when a Recamier curette may be used, and still earlier, Simon's sharp spoon may be used. Where the uterus is small it is only necessary to pack the vagina after curettement, but if larger, the uterine cavity may be packed with iodoform gauze. Before and after curettage the uterine cavity should be flushed with a quart of one-per-cent. creolin emulsion, used with a single-current metal tube. The tamponade is removed the next day, and a vaginal douche of one-per-cent. carbolyzed water given twice daily. Ergot may be administered in doses of one teaspoonful three times daily until an ounce has been taken. Anesthesia is preferable, and subsequent pain, if any, may be controlled by an opiate. The treatment above given applies also to cases of induced abortion. Where pregnancy is terminated after the fifth month, and the placenta is not expelled, tampon the uterus and vagina and wait twenty-four hours; repeat, if necessary, and if there is still retention, mechanical interference is necessary.—*Medicine*.

THE CURETTE AFTER ABORTION AND DELIVERY.—Böttner (*Centralblatt für Gynäkologic*, No. 51, 1897,) has observed twenty-eight cases where the operator was Glaevecke. He finds that the use of the curette is free from danger if carried out with proper precautions. It permanently stops hemorrhage after abortion or delivery, and as a rule the catamenia return soon, and continue normally, contrary to what is so often seen in mismanaged cases. A skillful use of the curette likewise prevents those morbid changes which are the cause of sterility.—*British Medical Journal*, Jan. 22, 1898.

APPENDICITIS DURING AND AFTER PREGNANCY.—Vinay (*Lyon Medical*, Jan. 2, 1898,) records four cases, and in all refers to thirty-

two cases. The small number tends to show that pregnancy does not set up torsion of the appendix or colitis, conditions which would increase the virulence of the colon bacillus, and so induce appendicitis. In the thirty-two cases there were ten deaths, a percentage of thirty-one, which is much higher than that of Armstrong in his series of 517 cases, with a mortality of 12.8 per cent. The only complication of importance in appendicitis occurring during pregnancy is abortion, which was noted in forty per cent.; this accounts for the fact that in half the thirty-two cases the children died. This frequency of abortion is much above that seen in other infectious diseases, and is referred to the intimate vascular and lymphatic connections existing between the appendix and uterine adnexa. Clado described an appendicular ovarian peritoneal fold as being constantly present, and considers that this carries the lymphatic from one to the other. Laforgue, however, only finds it in twenty per cent. of bodies examined. In two of Vinay's four cases the appendicitis was primary, but in the other two the appendicitis was due to the spread of the infection from the uterus. In the first there was post-puerperal infection which lighted up old appendicular mischief. The appendix was resected, and the right tube and ovary appeared healthy. In the other case, a primipara with a history of membranous colitis, there was hemorrhagic metritis due to retention of placental tissue, with subsequent appendicitis. The differential diagnosis of appendicitis during pregnancy from tubal gestation on the right side is not difficult, but it is less easy to distinguish it from right salpingitis complicating pregnancy. Appendicitis during pregnancy should be treated like ordinary appendicitis.—*Brit. Med. Jour.*, January 22, 1898.

AN ORIGINAL WAY OF DOING A VAGINAL HYSTERECTOMY.—Dr. J. D. Arnold, before the California Academy of Medicine, October 16, 1897, reported a case in which a midwife, after having delivered a woman, thought she saw the head of a second child protruding from the vagina. She seized it with both hands, and violently delivered, as she supposed, a second child. What she did deliver was an inverted uterus, completely tearing it away from its attachments. The physician who was called in did nothing but to tampon the vagina, and the woman made a complete recovery. No arteries were ligated, either *en masse* or singly.—*Med. Rec.*

CHRONIC VAGINAL GONORRHOEA.—In a very thorough article, Dr. Bodenstein ("On the Existence and Therapy of Chronic Vaginal Gonorrhoea," *Deutsche medicinische Wochenschrift*, 1897, No. 42) states that primary gonorrhoea of the urethra in women is rare; the primary infection is usually localized in the posterior vaginal vault, the urethra being secondarily affected by the discharge. As a means of microscopically proving hidden cases of gonorrhoea, Bodenstein advises thorough tamponade of the vagina, in both the anterior and posterior fornices, with cotton dipped in a ten-per-cent. ichthyol-

glycerin solution. Through the dilatation thus affected and by the hygroscopic properties of the glycerin, the gonococci—which the writer believes are situated in the subepithelial connective tissue—are brought to the surface, and hence may be examined. If in this manner the diagnosis of gonorrhoeal infection is made, the ulcerated and at times bleeding spots are touched with a two, five, or ten-per-cent. argentic-nitrate solution. Strong bleeding may be stopped by tamponade. The most favorable time for this treatment is either shortly before or shortly after menstruation. Cases complicated by subacute inflammation of the adnexa are first to be treated with ichthyol tampons. Bodenstein is of the opinion that the ordinary vaginal irrigation, as practiced, cleanses but slightly the posterior vaginal wall. Hence he advises that air be allowed to enter the vagina during irrigation, and more thorough cleansing will result.

PEDIATRICS.

William Fitch Cheney, in *Pacific Record*, presents some practical information about worms in children. First, it is a good rule never to make a diagnosis of worms unless they have been seen to pass from the child. Mothers frequently find particles of mucus in the stools which they call worms, and the physician should insist upon being shown the evidence. Where the symptoms are suspicious and yet no worms have been seen, the best plan is to give the child a cathartic, such as calomel or castor oil, and then watch the stool. If no worms are swept out by this means it is reasonably certain that none are present. The second point is that most of the symptoms attributed to worms are due rather to indigestion, and the mothers are the ones most to blame, because they have allowed improper food. Even if worms are found their presence is very frequently secondary to indigestion, and they have been able to find lodgment and to thrive because the gastro-enteric mucous membrane, by bad feeding, has been put in a condition to tolerate them. Thirdly, the most common kind of worm, the pin worm, is best treated by rectal injections. The simplest fluid to use is a solution of salt in water, a teaspoonful to a pint, and the best time to inject it is directly after the daily evacuation of the bowels. Another useful injection is an infusion made by steeping for half an hour an ounce of quassia chips in a pint of boiling water, straining the fluid and using when cool. In some cases, where the worms have migrated high in the colon, they are not all reached by rectal injection, and to this treatment must be added that of drugs by the mouth. For this purpose the most useful mixture is that suggested by J. Lewis Smith, consisting of santonin and the fluid extract of spigelia and senna.

THE TREATMENT OF WHOOPING-COUGH.—E. Ditel (*Der Kinderarzt Kronika, Lekarska*, 1897, viii, 201) compares the various remedies at present employed for whooping-cough as follows:

Antispasmin was administered in ten cases and it did not by any means prove itself a specific in this disease. It did not influence the frequency of the paroxysms, although it had some slight influence on the intensity of the attacks. It proved to be a perfectly safe remedy. As it is, however, necessary to use it continuously for ten or twelve weeks to obtain any marked results, and as it is very high in price, it is not to be recommended.

Oxide of Zinc and *Extract of Belladonna* were also employed in ten cases, in doses of two to three grains of zinc oxide with one and a half grains of extract of belladonna. This combination diminished the number and intensity of the attacks; the duration of treatment was 8 to 11 weeks.

Zinc Oxide, alone, was administered to twenty-five children, two of whom died with some pulmonary affection. In all other cases the disease ran a favorable course, duration about the same as in previous case. Oxide of zinc does not seem to be a specific for whooping-cough. The author only recommends its use in cases of whooping-cough complicated with diarrhoea.

Terpin-Hydrat was employed in doses of 3 to 5 grains three or four times a day, in fifteen cases ranging from two to five years in age. The duration of the disease was somewhat less, seven to ten weeks. Terpin-hydrat is indicated in broncho-pulmonary complications.

Bromide of Sodium was only given to five children, from two to six years of age, in doses of 3 to 5 grains twice or three times daily. It seems to diminish the intensity of the paroxysms. The duration of the affection was seven to eight weeks.

Antipyrin, two to three grains at a dose and given three to four times a day, was tried in eight children from 3 to 6 years of age. Its effect was only fugitive, so that it was found necessary to rapidly increase the doses.

ICHTHYOL IN MEASLES.—Dr. Kolbassenko (Deut. med. Ztg., XVIII, p. 663) states that he has used ichthyol in eighteen cases of measles with excellent results. It was used in the form of an ointment of the following composition:

Ichthyol	10 gme.
Expressed Oil Almond.....	60 gme.
Lanolin.....	20 gme.

The ointment was applied three times daily to the pustules from the time of their appearance to the end. Prior to their appearance, in the febrile prodromal stage, when measles is suspected, the writer applies the following mixture to the entire body:

Oil Eucalyptus.....	} equal parts.
Ether	
Lanolin	

The excellent effects of ichthyol were shown by (1) the slight itching accompanying the eruptive period, the affected parts being slightly or not at all painful; (2) the lowness of the fever, not over

39.5° C. in the suppurating stage; (3) the visible smallness of the suppuration of the pustules; (4) the period of desquamation was from three to four days—half the time usually required. The applications were very well borne by all the children treated.—*Am. M. S. B.*

TANNALBIN IN INFANT PRACTICE.—Tannalbin has been used in seventy-five cases of intestinal complaints in children by Dr. Hans Osk. Wyss (Corresp. Blatt. für Schweiz. Acrzt., 1897, No. 15). Of this number fifty-three were cured and ten improved. The writer found that in enteritis and acute gastro-enteritis its action was always prompt, even the day following the administration the number of the dejections decreasing, and their color and consistency improved. Cases of subacute intestinal and gastric catarrhs were cured in a few days, and in a few cases where all other remedies had failed. Nor was its action any the less satisfactory in chronic, serious intestinal catarrhs, and particularly in those of a tubercular character. Its action, though slow, was certain in cases where even opium in large doses was ineffectual. Chronic rectal catarrh was also rapidly cured, and, in short, tannalbin was found to be one of the best and most reliable anti-diarrheal remedies, on deleterious by-effects ever having been observed to follow its use. On the contrary, an improvement in the appetite was uniformly observed to follow its administration. The doses given were 0.25 gme. for two to six times a day for nurslings and children up to 2 years of age, and 0.5 gme. for children from 2 to 5 years of age, given from three to five times a day. At times the remedy was also given in the form of an injection per rectum, in the dose of 0.5 gme. with starch, when excellent, rapid results were obtained, especially when the remedy was given per os also.—*Am. M. S. B.*

AMBULANT METHOD, THE, IN FRACTURE OF THE LEG IN CHILDREN.—James Porter Fiske (*Pediatrics*) says that a method which admits of a child with a broken leg being up and about during the first week, and by so doing not only tends to preserve the general condition of the patient, but “promotes a healthy and rapid union of the fragments,” (Hartley), should commend itself to all. The author favors the use of the ambulant plaster-of-Paris cast, requiring as it does only a few ordinary roller bandages and a few plaster bandages properly applied. The earlier it can be applied the better. It is put on as follows: After reduction of any deformity the limb is held by an assistant, the foot being flexed to a right angle, and the foot and leg are bandaged with a muslin roller from the toe-tips to and surrounding the tuberosity of the tibia. Over the muslin roller the plaster bandages are applied in the same manner, building it more strongly about the ankle and also at its superior circumference, where in walking it largely supports the weight of the body. No padding is used, the splint exerting pressure at all points. It has been thought that as the tuberosity of the tibia is not developed to

the extent of adult life, the ambulant cast is not applicable to children. This view, the author claims, is erroneous, he having successfully applied it at all ages and in various conditions, not only in fractures of the leg, but in tubercular disease of the ankle joint, after clubfoot operations, and after operations about the ankle joint, including resection of the joint, and also in osteotomy cases involving both tibia and fibula. The patient walks on the injured limb without the aid of crutches, the weight of the body being transmitted from the tuberosity of the tibia to the upper circumference of the plaster cast. The advantages of the treatment are that the patient is kept up and about, less muscular atrophy occurs, there is less stiffness of the adjacent joints, the period of after-treatment is considerably shortened, and the general health of the patient is maintained.

CHOREA.—Francis B. Bishop (Am. Jour. of Obst.) uses electricity in the treatment of this disease. The treatment, he says, is based upon the hypothesis of an unstable condition of the motor, sensory, and very often psychic centres of the cortex, and that the perfect, harmonious, and healthy action of these centres is distorted and inco-ordinate in consequence of some severe shock or some poisons, and that they become so weakened thereby that they are often thoroughly incapable of themselves of throwing off the spell that binds them; and that the gentle galvanic current passed through these centres stimulates them and aids them in their efforts to physiologic action. The static cage gently stimulates the periphery and is very soothing to the general nervous system; while the inhalation of the ozone permeates every tissue, supplying oxygen to the impoverished blood corpuscles, thereby giving new life to all the tissues of the body, including the nerve centres themselves. The static spark, of course, is not used unless there is considerable loss of sensation, and in that case there is nothing else that will restore it so completely.

Charles W. Burr (in *Pediatrics*) reports a case of chorea with acute delirium occurring in the course of scarlatinal Bright's disease. The delirium he believes to have been due to the kidney trouble. As to the chorea the causation is obscure. While it may occur after all the infectious diseases, it rarely follows scarlatina. It rarely occurs in Bright's disease. It may possibly be the result of many influences—some physical, as microbe poisons, others purely psychical, as fright.

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ORIGINAL COMMUNICATIONS.

TIGHT LACING—ITS RELATION TO UTERINE DEVELOPMENT AND TO DISEASES OF THE FEMALE ORGANS OF GENERATION.*

By W. E. FITCH, M. D.,*
Savannah, Ga.

"Seest thou not what a deformed thief this fashion is?"

Mr. President and Gentlemen of the Georgia Medical Association:—My only excuse for bringing this subject before the members of this association is the absolute necessity for seriously considering the subject of tight lacing as it exists to-day in all civilized countries.

The author's chief aim will be to call the attention of the profession to the evil effects of tight lacing and have them discuss the subject and devise means of informing the laity of the serious effects of this fashion. It behooves us as physicians to lead in this reform and to help it into practical channels.

This subject is of special interest to the general practitioner as well as the gynecologist, while to the race it is of serious importance.

Convinced clearly as to the truth and firmness of this article's claim, the author feels no degree of trepidation in condemning this injurious fashion, and asks your support and influence in offering a bold protest against it.

The importance of this subject as an ætiological factor in diseases of the pelvic organs has been lost sight of in the mad rush for scientific research.

There is no one subject to which more importance should be given by the profession, and the author will try to faithfully point out in a practical manner the evil effects of tight lacing, both as a factor in the etiology of disease and as an impediment to the normal development of the uterine organs, which offers the greatest hinderance to disease, and at the same time to contrast the well developed con-

*The 48th annual meeting of the Georgia Medical Association, Cumberland Island, April 21st, 1898.

ditions and freedom from pelvic ills in those who do not practice tight lacing with frail constitutions—barrenness and various uterine disorders—found in those who wear the corset tight I wish it understood that tight lacing is not confined only to those who wear the corset—for the clothing may be worn so tight as to do practically the same harm, though to a less degree by gradual compression.

Tight lacing is not the only cause of mal-development of the uterus and accessory organs occasioning diseased conditions, but I wish to firmly impress upon your minds that it is one of the chief factors. I will now ask you to briefly review the anatomy of the female pelvis so that you may better comprehend the idea intended to be conveyed in this paper.

The bony pelvis consists of a solid unyielding structure of bones, with a false pelvis representing a truncated cone, the base looking upward and slightly flattened on its anterior; the external and internal oblique, transversalis; pyramidalis and rectus muscles, with sheaths and tendons combining, form the lateral and anterior walls of a cylinder continuous with the last named structure. The spinal column lined with quadratus lumborum muscles form the posterior wall.

Inclosed in this cylindrical body, (pelvis) from diaphragm downward, are the various abdominal and pelvic organs, all readily displaced by pressure. Among these we find the uterus which remains undeveloped and in an infantile state until near the approach of puberty when it develops rapidly and continues to increase in size, proportionately, to the rest of the body, until the normal size is reached, which is usually between the sixteenth and twentieth year.

The virgin uterus is about two and one-half inches long, its width, at about the level of the fallopian tubes, nearly one and three-quarter inches, and its weight about twelve drachms. It is suspended in the pelvis by ligaments amounting to little less than folds of peritoneum. The fallopian tubes and ovaries, with feeble supports, spread out on the right and left of uterus in connection with the broad ligaments almost at right angles. The ovaries formed from the Wolfian bodies rapidly begin to develop at the age of twelve—a new era sets in—maturation and periodical rupture of the Graffian follicles; the remaining parts of the generative organs, before and at puberty, rapidly increase in size. At least eighty-five per cent. of girls develop their generative organs between the twelfth and sixteenth years. It must also be remembered that the uterus and appendages are covered, almost entirely, by peritoneum, which is very susceptible to injury even from very slightest causes: that the construction of vessels supplying blood is of such a nature as to favor, either anemia or congestion, proportionate to the degree of compression exerted. With the free mobility of the uterus and the increased supply of blood the parts are receiving, or should receive, enables us to more clearly understand the effects of pressure on an organ requiring rest and freedom during the period of development.

It is at this time, and more frequently earlier, that parents give their consent for the girl to commence the use of the CORSET, and use their own ideas, which is not always moderate as to the degree of constriction. "Either thou art most ignorant by age or wert born a fool."—WHITE. "Nature stood with stupid eyes and gaping mouth which testified surprise."

The corset is so constructed that when worn exerts its greatest influence—pressure from above the brim of the pelvis downward, constricting the abdominal walls, the lower part of the thorax, and pushing inward the costal cartilages, often the seventh and eighth overlapping.

The greatest constriction occurs in the immediate neighborhood of the stomach, which, when distended, as after a hearty meal, produces the "hour-glass stomach" found at times in this class of patients.

The small intestines with mesentery and colon are crowded into the pelvis. Douglas' cul-de-sac is filled with small intestines which helps to cause antiversion of the uterus when the rectum is loaded with feces; and when the bladder is distended, rectum empty, retroversion results, displacing the intestines into the posterior cul-de-sac.

In most cases the compression is so great as to interfere with the normal peristaltic action of the intestines, thereby producing constipation. Compression in any part interferes with physiological functions, therefore we arrive at the following conclusions:

1. The normal breathing of woman is like that of man—abdominal, tight lacing changes the types to costal.⁽¹⁾

2. The pelvic organs normally make a considerable excursion with each respiration.⁽²⁾ Tight lacing in the upright position checks this motion almost entirely.

3. Sitting or leaning forward lessens intra-abdominal pressure.⁽⁴⁾ Tight lacing in these positions greatly increases intra-abdominal pressure.⁽⁵⁾

4. The uterus is displaced downward by tight lacing from one to two and a half inches. The pelvic floor is bulged downward and the circulation rendered sluggish.

5. Uterine development is greatest from the twelfth to sixteenth year. Tight lacing is usually commenced at this the period of the beginning of uterine development.

Women when asleep breathe like men; all animals, male and female breathe alike. Mays has shown that Indian girls breathe like men, and Kellogg has confirmed this observation among several Indian tribes, among Chinese women, agricultural women and English pit-brow lassies, and civilized women who have been loosely clothed about the waist, all show the same type of abdominal breath-

(1) Wilberforce Smith, Brit. Med. Jour., Oct. 11, 1890.

(2) Kellogg and Mary Putman Jacobi.

(3) Dikman.

(4) Schatz' Archives of Gynecology, III, 58, IV, 1893.

(5) The Corset Question, Kellogg, N. Y. Med. Jour. Nov., 1887.

ing; and the flimsy argument that chest breathing is normal to woman, because it is necessary during gestation, goes to the wind when it is shown that even in the last months of pregnancy abdominal respiratory movements predominate over the thoracic movements. The most active respiratory organ, that muscle of respiration, the diaphragm, adapts itself to circumstances, so that long distance runners in the quiescent state have least costal breathing of all classes of men.

The Egyptians, who were first in the promotion of civilization, education and art, while permitting variations in luxuries were forbidden to introduce any new ideas of "fashions" in articles of dress tending to constrict the waist or in any way modifying the true teachings of Nature.

Africans, Indians, and all other nations who wear loose clothing are almost entirely free from pelvic disorders. It is in this class of women that we find the most natural and perfect pregnancy, easiest and most natural deliveries and most satisfactory puerperium.

Any physicians who has practiced medicine in the rural districts for the well developed and healthy, and later in the city for the delicate, badly nourished, poorly developed, and where tight lacing is practically universal, will be convinced that there is an explanation for the frequency of female ills in the latter, as compared to the former. There is no doubt of the fact that 75 per cent. of the women who habitually practice tight lacing, to any considerable extent, suffer from mal-development of the uterine organs, especially if the corset is worn at that period of life when uterine development is greatest.

It is clear to any thinking mind that mal-development conduces to diseased conditions, and practically renders physiological functions of organs incomplete and painful. Uterine Displacement—that subject about which so much has been said during the past decade, and whose treatment has been so varied that, "Falling of the Womb," which is so prevalent in the minds of such a large number of women and a "hobby" for so many doctors, the main cause can be traced back to the "CORSET." In no other forms of mammalia, other than mankind, do we find uterine displacement or diseased conditions of the generative organs. Why is this?

Tight lacing produces mal-development and displacement of the uterine organs and appendages, thereby menstruation is affected in many ways. Amenorrhœa frequently is the result of a poorly developed mucosa and its annexa together with a faultily developed ovaries—a condition which, if neglected, often leads to atrophy—or we may have congestion with long continued profuse flows. Dysmenorrhœa is a condition which I think is mainly due to mal-development of both the uterus and appendages, the nervous system and also the muscular and cellular tissues, rendering them inadequate to their physiological requirements. Cancer is a rare disease with the Indians, yet occurring frequently in civilized countries,

must have its explanation in some custom peculiar to such civilization.

We are all cognizant of the fact that in the uterus there are embryonic cells which remain through life; they are considered the cause of epithelioma of the cervix, and the cervix, in 98 per cent. of cases, is the seat of cancer, local irritation being the chief cause or generator. Tight lacing produces this irritation by the downward pressure on the cervix against the floor of the vagina. To strengthen my argument I quote from Heart & Barbour: "Up to puberty the mortality for carcinoma is the same, afterward the relative proportion of female to male deaths gradually rises till it attains its maximum, about the age of sixty years."

Miscarriages, lacerated cervix, weak and inefficient contractions of the uterus in labor, protracted puerperium, the result of sub-involution, may often find their true explanation directly or indirectly due to mal-development. The increased frequency of endometritis, hyperplasia erosion, stenosis, sterility and atresia of the cervix and os, must be largely due to this cause—a large number of the parametritic cysts, as well as papillomatous cysts of the hilum, parovarium and cysts of the broad ligaments, have their origin in these unobliterated ducts and the remains of the Wolffian bodies. Mal-development is surely accountable for this condition of affairs. Fibroid and other solid tumors of the uterus have their ætiology in mal-development of the organs of generation. This fact is borne out by Schroder and Gusserow.

The only benefit obtained in the treatment of pelvic disorders with electricity is mainly due to its efficacy as an aid to more completely develop the much abused organs. All women who have practiced tight lacing complain of pain on removing the corset. This pain is due to the effort of the organs to assume their normal positions.

Goethe once said "art is art simply because it is not nature." This is borne out by referring to the figure of females who never wear the corset. Visitors cannot help observing the beautiful and natural figures of Venus de Medici with many other Roman and Grecian sculptures, and must be convinced that those noble matrons never practiced tight lacing.

Are civilized customs, fashions, and forms of dress more conducive to health than those of the savages? It is thought not.

"Is the savage waiting for civilization to offer him ideas and reforms in dress, or is he past it and mastering it?"—WHITMAN.

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THE EPIDEMIC OF SMALL POX IN WALKER COUNTY, ALABAMA.

By R. S. WOODSON, M. D.,

Capt. Medical Department, United States Army.

The County of Walker, State of Alabama, is adjacent to Jefferson, the county seat of Birmingham. It is thickly inhabited, and is the seat of many mining towns, principal among which are Patton, Coal Valley, Corona, Carbon Hill, etc.

The large majority of the inhabitants are negroes, of a low class, crowded into habitations of the humblest description, and without the slightest attempt towards the requirements of modern municipal sanitation.

These facts, together with the superstitious dread of the negroes for vaccination, and his proverbial daily habits, render such communities favorable foci of infection, and especially of small pox.

These mining towns, in the adjacent counties to Jefferson, are but suburbs of the large trade center, Birmingham, with which city the most intimate and constant intercommunication exists.

This epidemic as well as others in like adjacent outlying districts, is important, constituting as they do a constant menace to the health of Birmingham, and rendering futile any attempts to control the disease in that city, until all danger from such infected foci have been removed by constant and careful sanitation. The difficulties in the way are admittedly great, principally the dread of vaccination, the concealment of cases and the very great nomadic tendencies of mining classes. The entire character of the population frequently changing in a short period of time, thus offering a virgin field for the propagation of infection.

The failure of the Board of Health, of Jefferson county, to control the epidemic in the Birmingham district, is principally due to the above facts; and it was only after the efficient work of the Marine Hospital Service that the disease could be at all brought under control. It is easy to predict that as soon as the population of that city shall have so shifted as to present a respectable number of non immunes among the negroes, the disease will again become epidemic.

I am far from criticising the energy and intelligence of the people of Birmingham; they have done more than their part in the work of extermination. The fault lies in the health establishment of Alabama; which, briefly described, is as follows: 1st. A State Board of Health; 2nd, County Boards of Health.

The president of the State Board of Health has an advisory control over the County Boards of Health. The internal administration of sanitary requirements, however, is left entirely to the county authorities, and the judges of probate are ex-officio the executive officers of these various Boards.

The greatest dissimilarity exists in the intellectual average of

these Boards. Those of Jefferson, Montgomery and Mobile being composed of men who are an adornment to the profession, while those of back-woods counties are necessarily of inferior grade. It will be easily seen that internal administration of sanitary requirements will be administered in direct ratio to the intelligence and energy of the various county boards. Hence the lack of a hearty co-operation which is fatal to the successful eradication of an infectious disease.

On February 7, 1898, an outbreak of small pox occurred at the mining town of Patton, Walker county, Alabama, fifty-six miles west of Birmingham, and intimately connected commercially therewith.

While on leave in this vicinity, I was invited to take control of the situation by municipal authorities, and was given carte-blanche for whatever was deemed necessary in the premises. I was assisted in this work by my brother, Dr. John L. Woodson, of Oakland, Ala.

The disease was reported from the neighboring mining town, Carbon Hill, in the person of a negro miner returning from a brief sojourn in that town, where small pox was prevailing; the four subsequent cases being confined to members of his own, and an adjacent family under the same roof.

These cases constituted the source of infection, and all subsequent cases were traceable to this household, principally among relatives and intimate friends of the family, who had slept in the house, or spent lengthy visits thereat.

A lazaretto and a house of detention was established one mile from the town, and house to house inspection instituted. All frank cases were transported to the former and all suspect cases to the latter, except in one instance to be sectioned hereinafter.

General vaccination was instituted; the vaccine lymph tubes and points being furnished by the county health authorities, and the proper disinfection of infected foci systematically carried out.

All suspected cases eventuated into true small pox.

The majority of cases were of the discrete form, but there were several confluent cases of grave type.

The convalescents were confined until a sufficient time for desquamation had elapsed, and before dismissal were given a scrub bath in hot solution of bichloride, clothed in fresh clothing, and their old clothing boiled for one hour.

The disease attacked one white family, the husband of which, being the keeper of the commissary and in intimate contact with the negro element. This family, consisting of husband, wife and five children, all contracted the disease except the eldest boy, who alone had been previously and successfully vaccinated. This house was promptly isolated after the recognition of the disease, on the first appearance of the rash, the family refusing to be separated.

By these means the epidemic was soon controlled to such an extent that the representative of the Marine Hospital Service,

(Passed Asst. Sur. Brown) who was ordered down at my instigation, upon the expiration of my leave of absence, did not consider that the situation warranted his presence.

The clinical history of these cases, numbering thirty-one, presents nothing worthy of note, except the absence of any mortality, and the frequent occurrence of the complication, pharyngeal catarrh.

A few points of observation, however, are thought worthy of mention:

1st. The extreme difficulty of controlling an outbreak of small pox among a negro population, on account of the superstitious dread of the negro for vaccination; his dirty habits; addiction to overcrowding, and the concealment of cases, necessitating continual house to house inspection, while at the same time the disease itself seems to have no terror for him.

The negro is by nature a superstitious creature, frequently moral suasion and even threats being resorted to, to accomplish vaccination.

2nd. The lack of correlation between the incident and consequent type of the disease; numerous instances being observed where the most virulent confluent type was contracted from the mildest of discrete cases.

In many of these instances, the mild discrete case gave a history of a previous successful vaccination, while the consequent confluent case gave no history of vaccination.

3rd. The limitation of the infection of small pox in the present instance being limited to the families under roof of first infected focus of adjacent houses, and among persons brought in intimate contact with the disease; 75 per cent. of infection being limited to persons who had slept or spent a great deal of time at the original infected focus.

4th. The immunity of the whites, due, of course, to vaccination and non-intercourse with the negroes. The only whites affected having no history of previous vaccination, and of necessity in intimate contact with the negroes.

5th. The influence of a previous vaccination in mitigating a subsequent attack was well marked. Cases with previous history of vaccination—in childhood—always exhibiting discrete cases, while those without such histories frequently presented the gravest symptoms.

6th. Evidence against the possibility of infection during period of invasion was observed in the first white case and one negro.

No infection occurring among the frequent visitors of the former during this period when the disease was not recognized, and the fact that in the latter, a nursing babe taken from its mother on the first day of the rash, did not develop the disease.

The period of incubation was found definitely to be in one case 9 days.

The period of invasion from initial chill to appearance of eruption from 3 to 4 days.

Results of vaccination are 10 per cent. successful with ivory points of uncertain age; 100 per cent. successful in original cases when fresh lymph tubes were used.

Fort McPherson, Ga.

AN IMPROVEMENT UPON SAYRE'S METHOD OF TREATING FRACTURED CLAVICLE.*

By J. W. HENSON, M. D.,

Professor of Anatomy, University College of Medicine, and Surgeon to Virginia Hospital, Richmond, Va.

Mr. President and Gentlemen:

I crave your indulgence while I attempt, in as few words as possible, to explain to you an appliance which I hope you will find an improvement upon the present methods of securing position and immobility in a fractured clavicle. Every intelligent doctor is aware that the indications in the treatment of this fracture, on account of the position and attachments of the bone, are to draw the distal fragment upward, backward and outward, through the medium of its connection to the shoulder. To accomplish this, Sayre's method is the best now in use.

In this method the adhesive strip, which passes from the arm of the injured side horizontally around the chest, admirably performs its function and rarely slips much.

But while the strip, which passes from the sound shoulder around underneath the opposite elbow and back again, and does its work well when first applied, yet it is almost certain to slip, and in warm weather does so very quickly, thus losing efficiency; is apt to roll up on the shoulder and hurt by becoming cord-like, and is altogether very uncomfortable. In the place of the latter strip I have substituted the following arrangement with success.

Out of denim, unbleached jeans or other very stout cloth, get a seamstress to fashion for the sound shoulder what, for want of a better name, we will call a shoulder cap, with two extensions or tails, one opposite the other. When held in the hand it bears a crude resemblance to a truncated dunce-cap. It must be so made as to fit snugly the whole shoulder and upper part of the chest just below the axilla. That this may be accomplished, an armhole is necessary, which also serves the excellent purpose of preventing slipping.

There should be almost twice as much of the cap upon the shoulder as upon the chest below the axilla. The extensions or tails are one in front and one behind. The posterior one is directed across the back along a line drawn from the shoulder supporting

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the cap obliquely downward toward the opposite elbow. It should reach a little beyond the middle line, and may be pointed. The anterior tail should have the same course across the front of the chest, reaching as far as the opposite nipple, and its end should vary in width from one and one-half to two and one-half inches, according to the size of the patient.

Upon its under surface there is to be made a pocket, reaching from near its end upward and outward quite to the top of the shoulder, and just wide enough to accommodate the patient's hand. When tension is made upon both extensions at the same time in the line of their direction, the cap should bear with equal pressure upon the shoulder and chest. Attach a buckle to the end of each extension.

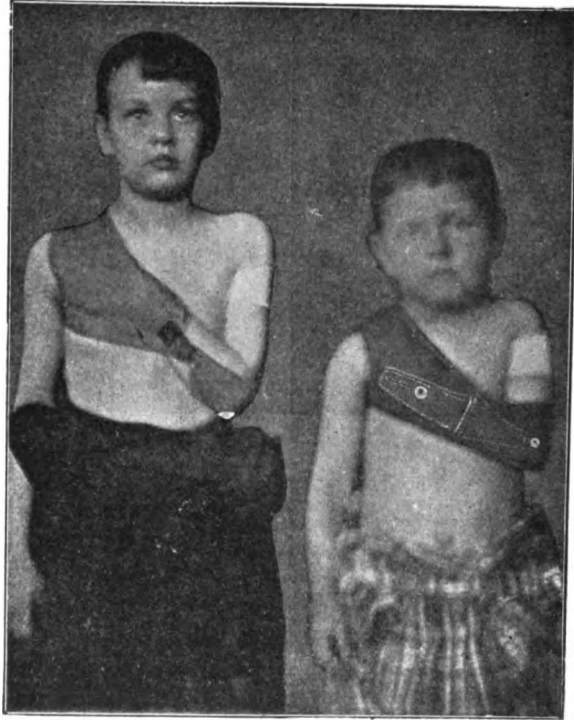
From the same stout cloth cut a narrow oblong piece sufficiently wide to accommodate the elbow and long enough to reach from the middle of the arm to the middle of the forearm when extended. To each end of this, which we will call an elbow piece, attach a tape of a width to match the buckles mentioned above.

No as to the application: Apply the horizontal strip of adhesive plaster just as in Sayre's regular method. Then fit the shoulder cap upon the sound shoulder. Into the pocket under its front extension introduce the hand of the injured limb, after carrying the forearm up across the front of the chest. Apply the elbow piece to the already flexed elbow and fasten its ends respectively to the anterior and posterior extensions of the shoulder cap. A hole should be made in the elbow piece one and one-half or two inches forward of its center for the reception of the olecranon process.

I have described in as simple a manner as possible the principle of the apparatus. Under the direction of a doctor, a clever seamstress can make many useful modifications. For instance, instead of the plain elbow piece, with hole for the olecranon, a pocket may be made to fit and securely grasp the elbow, so that, when the front connection is tightened, the latter (the elbow) will be more firmly held forward, and, through the principle of the first class of levers the arm, with the side of the chest as a fulcrum, will draw the shoulder outward at the same time it is being held upward.

Examine in the accompanying cuts the smaller figure, which, by the way, is that of a child treated for a fractured clavicle by this means, and with perfect success. You will see that the mother has made instead of a pocket for the elbow alone, a pocket or case for the elbow and forearm, which, when the apparatus is in position, is practically continuous with the pocket for the hand. This gives additional support and security, and is to be advised in children to prevent removal of the hand. Buttons may, of course, be used in the place of buckles for the fastenings.

By properly adjusting the connections in this appliance the desired position and support will with certainty be obtained, and, furthermore, maintained with comfort.





HYSTERIA.*

By A. A. DAVIDSON, M. D.,
Augusta, Ga.

We would not apply the term "ophthalmia" to an inflammatory process or other pathological condition going on in the ear, in the nose, or in the mouth; and very hardly were the uterus the seat of the disease, because, it is readily apparent, by reason of knowledge of the derivation of the word, that when used it has reference to some condition of the eye, and yet, from the standpoint of etymology, the term, it seems, should admit of as liberal use as the other, the term "ophthalmia," from *ophthalmos*, eye, as the term "hysteria," from *hystera*, *hysterikos*, womb,

Ophthalmia might produce various nervous phenomena, viz.: headache, irritability, etc., or disturbances indirectly of the functions of various organs, e. g., nausea, etc. Such conditions would be denominated according to the symptoms respectively with reference to ophthalmia only as a cause. While the term "hysteria" we know all its varied and remote symptoms; and more, its like affections, in the male, whose uterus has not yet been found, nor its appendages, we name "hysterics."

The above is not a criticism of the application of the term "hysteria," but goes to show some of the inconsistencies of nomenclature, and medical terminology, and how from an etymological standpoint the word used would be misleading; for with the strictures of etymology, hysteria is not hysteria at all. But I may not offer a substitute which would better serve. The term is comprehensive in its common accepted use—a simulation of nearly every malady or ailment to which human flesh is heir, is comprehended by it. It is the mocking-bird of diseases, ape of all maladies, imitator of all ailments. Hysteria is a disease wherein the emotional is in the ascendancy over the volitional, and characterized by marked and marvelous expressions of the propensities of the idiosyncrasy of the person affected, and is not hysteria necessarily because of any abnormal condition of the uterus, but is manifestation of a morbid and inco-ordinate activity of brain and nerve forces, volition being subordinate, characterized by symptoms motor, sensory and sympathetic, abnormal in nature, in expression frequently stimulating symptoms of various pathologic or diseased states, such as hyperæsthesia, anæsthesia, paralysis, convulsions, general and local suspension of functions, secretory and excretory, etc.

The causes of this condition are predisposing and immediate or exciting. Heredity stands among the first of the former; family history of phthisical, strumous or neurotic antecedents may confidently be sought; many conditions of unsatisfied nature, long mental worry and physical strain, and protracted suspense. While

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the poorer classes are by no means exempt, those who live in luxury and have been brought up to know no restraints, or those whose education has been ill-directed, are more susceptible. The female is most frequently affected, and at the age of young womanhood; those who *have* to live in the happy (?) state of celibacy. Unfortunate marriages and disappointing ones, continued nursing of loved ones, heterophoria and astigmatism, are all conducive to this unstable state of volition and repeated predominance of the emotional. That prostitutes are more liable to this condition than others is easily attributable to dissipation, the moral and mental environments together with the brooding consciousness of a previous purer and happier life, and not necessarily to any pathological condition of the genitalia. As in all neurotic conditions of the female at the catamenial period, there may be an accentuation of the seizure that occur at this time; and though I am convinced that the seat of the disease is a morbid and inco-ordinately acting brain, I cannot exclude in the rare instances as predisposing as well as exciting cause some dyscrasia of the female organs of reproduction. The immediate cause may be shock to the mind or body, poignant grief, sharp disappointment, abstinence from food, the eating of food hard to digest, and mocking and imitation. This is but a partial enumeration of the causes, but it may serve to undeceive those who would attach too much significance to the derivative meaning of the term "hysteria."

This is a malady characterized by symptoms just as real to the sufferer as though they were of the disease imitated. Pain is just as poignant; and a remarkable feature of it is, that very frequently it is not amenable to the usual means of relief, anodynes being ineffectual when exhibited in large doses. Indeed, to a woman who I am sure is not addicted to its use, I have given in a single night two grains of morphine, besides four drachms of chloral and six drachms of bromide-potassium, which, with several drachms of McMunn's Elixir, she claims to have taken, produced no sleep. These agents were administered per orem. My explanation was that there was suspension of the action of the sorbefacients, as there was indeed of the secretory glands of digestion as shown by ejected food taken a number of hours previous. I here will recur to causation to say there seems an inter-dependence with cause and effect of this undigested matter, but the effect (?), the hysterical phenomena are too exaggerated to be simply due to a piece of ham or other hardly digestible matter eaten, if there were no hysterical predisposition. In a number of instances where the onset was precipitated in like manner ordinary efforts to produce emesis would fail where the emetic was given by the mouth in full doses; and only was the result desired effected by subcutaneous administration of apomorphia in decided dose; then the inevitable nausea, with vomiting offending substance and effectual dissipation of seizure. Pain is a common symptom of hysteria, occurring most

unaccountably in various localized parts of the body, and generally pain in the head, pain in the chest, with dyspnoea in many instances. Frequently it occurs confined to the muscles or viscera of one side which is presided over by a given brain centre; simulating closely the symptoms of a brain or nerve lesion. Pain may occur associated with marked contraction of a muscle. An abdominal muscle thus affected may prove for not a little while very deceptive to the casual observer; the physician will have his attention directed to the iliac region as place of a pain which shortens breath, the condition usually accompanied by distressful retching, alarming friends and physician, if he dare be unsophisticated. Examination reveals an unyielding mass which is persistent and apparently lasts for days. Authors say this condition of muscular contraction may continue unremittingly for days and weeks and months and even longer, then disappear to leave no apparent or actual effect upon the muscle at all. To me this appears rather untenable, since physiologically reasoning, a muscle in simple disuse becomes atonic and next to useless; and that a muscle in tonic contraction for any length of time would not become exhausted, not to speak of the nerve stimulus which incites this condition failing, is beyond me to conceive. The rather does it appear that this rigid state is off for seasons, returns to its normal condition. But without close watching, this tumor when of an abdominal muscle, (it may occur in the muscles of the thigh or arm) may lead to the diagnosis of an inflamed appendix or ovary, or some displaced viscus, any of which conditions may be eliminated by inquiry into the history of the case or administration of an anæsthetic.

In an hysterical attack the patient may disclose to a careful observer a marked tendency to observe the first law of Nature, while ostensibly appearing utterly regardless of divers pending calamities to self. In the epileptiform there is no injury to person which appears to the credulous as miraculous. In such condition a douche of cold water proves promptly efficacious. But let not these facts create within the mind of the medical observer contempt for the subject. It is as sure as can be, by personal effort, the patient cannot avert the attack, and just as true is self control impossible without the intervention of that which stimulates to a greater exertion co-ordinate activity of the brain, (on awakening from their lethargic state the centers of self-control) an asserting of its normal superiority of cerebrum over cerebellum. The very fact of the effect of this intervention strongly tends to make one uncharitable to the sufferer and skeptical of the existence of any suffering at all.

Sequelæ Consequences: Hysterical attacks do tell upon the constitution. In a subject whose antecedents were sound and clear of strumous or phthisical affection, where there were recurring attacks of a sensation of constriction in the chest with marked dyspnoea, knotting of some abdominal muscle, apparent suspension of respiration from ten to twenty minutes, foolish gesticulations, tossing cover

and tearing gown, with remissions of symptoms from shock, cold douche, hypodermic use of apomorphia, or administration of chloroform to narcosis, the patient subsequently had hemorrhages from the lungs, became markedly reduced in flesh and physical strength. A careful examination of this patient's lungs disclosed no marked abnormal state, so I was led to the conclusion that continued tonic contraction of the circular muscular fibres of the air cells repeatedly recurring produced an exhaustion of tonicity of those fibres and of the different nerve stimulus which supplies them, which was naturally followed by a determination of blood to this part and consequently on contraction of slight cold, or on sudden shock or mental or physical worry, this determination of blood to the atonic area amounted to congestion, and breaking through the weakening covering of vesicles into air cells and spontaneous occurrence of hemorrhage. Now, this condition, without slightest cough or night sweats, or predisposition or tubercle, I say was a consequence of repeated hysterical attacks; so we may not ignore the dire consequences of this malady to which we may be prone to attach no significance. Another symptom which is native to the name "hysteria" is false conception. Here pregnancy begins and goes to full term, morning sickness, objective symptoms and all. Fright will almost make a marked deliverance and without the dangers attendant upon the puerperium; but woe, I am told, is the man or woman doctor who is called in to Granny the case by kindness or other comforting and usual means.

There is a condition which sometimes arises in the course of true pregnancy which I may not be justified in naming as being peculiar to the hysterically disposed, but am persuaded is met with more often in such women—hydrourea-gravidum. The one case which has come under my notice was in such a subject, in whom the sudden gushes of water would precipitate an hysterical attack.

There are spasms of the muscles accessory to respiration which bring about symptoms so common as to be characteristic of the disease under discussion, the laughing and crying so exaggerated are common, but by no means constant; the dry, sharp cough, paroxysmal or continued is rightly called the hysterical cough. It is sometimes continued for days except when subject is asleep or conscious of being alone for any length of time.

General muscular spasms are common in women subject of hysteria, less so in boys, rarely in men. A comatose state is not infrequently met with in them. These seizures may be epileptiform or tetanoid; the sufferer falls without warning (?) as a true epileptic, but falls markedly softer and is suspiciously selective of locality and conditions, rarely being hurt; sometimes there is shriek in falling, then rigidity of body with foaming or slobbering at the mouth; it is unusual for the tongue to be bitten in the attack; the patient goes off into tonic convulsions, opisthotonos being marked, a state of coma apparently or really supervenes, (though certain

remarks or actions of by-standers may serve to dissipate the spell) the attack may last for minutes, passing off with or without return to acknowledged consciousness, only to be repeated, to the great alarm of neighbors and friends.

The visceral symptoms are many and misleading; the most distressing of these is the suspension of any function of the alimentary tract, seemingly, whatever, no appetite, bowels not responding to cathartics, urine persistently not passing. This condition continuing for days with pulse and respiration normal, no rise in temperature, no symptoms of real uræmia, no apparent ill-effect whatever of consequences. Coming out after many days of this hysterical state, the normal functions are resumed as regularly as ever formerly. But there comes sequelæ to these repeated symptoms of the hysterical state.

Now a few words as to the mental manifestations—the intelligence may appear good, and is, but fixedness of purpose without continued stimulus, careful forethought, habit of systematizing, power of concentrating the mind on a given subject for any great while (save *se-mal*) and sound judgment are rarely met with. Self reasoning is in abeyance when listening to the pathetic, plausible story; the mind is swayed easily, and unbidden and unseasonable tears will flow, while burst of laughter uncontrollable will greet a solemn statement or sad revelation; but worse than these few symptoms is a lamentable tendency to lack in integrity with special reference to deceit, the subject in an almost irresponsible manner permits herself caught in point-blank falsehoods.

As to diagnosis being treated under a separate head a recapitulation of the symptoms with the relating of similar symptoms to those which occur in numberless other diseases, which we might find hesitancy in eliminating in seeking to diagnose a given case, becomes necessary. Suffice it to say that a careful inquiry into the heredity and history of the patient, previous life and present environments, circumstances or conditions will go far towards deciding, having a care not too quickly to dismiss from the mind any apprehension of a more serious condition. Physicians, as a rule, are prone to skepticism, and much dealing with hysterical patients is hardly calculated to lead one from the tendency to give little credence to the multitude of womanish complaints.

An hysterical patient, by reason of her hysteria, does not become immune from the disease her symptoms have been stimulating.

Prognosis. In a given case, however grave the symptoms may appear, if it is, in the physician's mind, clearly defined hysterical the prognosis is entirely favorably for the given attack, but sequelæ are not wanting where attacks are recurring; the actual may supervene the real. The muscle which is maintained (?) in a state of original contraction loses tone, and the supply of nerve stimulus entailed to keep up this condition as in strabismus, demanding complementary activity from its particular center, is likely to set up various and serious neurotic phenomena hardly to be defined as

hysteria. The repeated interference of normal functions of the alimentary tract, with its complement of glands, which, in a given single attack, leaves no discernable effect, will surely tell upon digestion and assimilation and consequently on nutrition. Corea is not infrequently met with in persons subject of hysteria.

Treatment of hysteria is that part of the thesis which I may not enlarge upon—the thing of first importance is having the confidence of the patient, confidence that his or her symptoms have been carefully sought out and weighed, that the promise of complete recovery that may be held out is the result of this careful study of the case, else little can be effected. In seeking the mode of management of this disorder we look away from drugs except in case of complicating intercurrent diseases; this is the rule and principle, but there arises conditions at times which must be met by the energetic use of active medicinal agents. I use the term “must” not in its absolute sense, but because of the sometime peculiar situation of physician and patient. One cannot, in every instance, douche a pail of ice-water in the face of the patient if convulsions be present, though they be hysterical. The patient is a lady of social standing, of integrity, and of delicate constitution, what’s to be done? Power of moral suasion is not applicable by reason of the patient being in a semi-comatose, if not comatose (?) state, and *will* not be thus reached. Eminent writers would eschew such anti-spasmodics as bromides and chloral. Experience leads me to the conclusion that where sleep can be induced and maintained for some hours a great advantage is gained. This can be effected by using chloroform to unset the paroxysm, continuing the sleep by use of chloral per rectum. The subject wants to be taking medicine, so reconstructives, tonics, etc., may very well be administered, since states of mal-nutrition, debility and anæmia are favorable to the development and aggravation of hysterical symptoms. A plan of treatment pertinently given here is that adopted by Dr. Weir Mitchell, of Philadelphia, introduced into this country by Dr. Playfair, which is complete isolation of patient and maintenance in bed, milk given in increasing quantities. Massage being used in lieu of exercise; brilliant results having thus been obtained; however, the plan is rarely practicable. If it be impossible to place the patient among non-apprehensive and unsympathetic attendants, for patients sake and theirs, the family or immediate interested should be acquainted with true condition and educated to deal intellectually with hysterical attacks and phases. Parents should know what their impressionable children read. Unlimited open air exercise should be encouraged. The mind should be engaged and kept off the imagined condition of self. The cardinal motive in treatment should be to so environ the subject as to call forth no expressions of an emotional nature but rather conduce to exercise of reason and will. Eye strain from errors of refraction or unaccommodated muscles should be corrected. Any physical or psychical cause should be removed if possible.

Georgia Journal of Medicine and Surgery.

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All editorial communications should be addressed to St. J. B. Graham, M. D., No. 327 East Liberty Street, Savannah, Ga., or to J. G. Van Meter, Jr., M. D., 7 Jones Street West, Savannah, Ga.

Articles for the original department of the *GEORGIA JOURNAL OF MEDICINE AND SURGERY* will be accepted only with the understanding that they are not to be reprinted, excepting by us, or to appear in any other publication, excepting the transactions of the Society before which the paper may have been read.

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PHOTO-ENGRAVINGS to illustrate accepted articles will be made free of charge, if proper drawings or negatives accompany the manuscript. Electrotypes of such cuts furnished at cost.

PHYSICIANS' WANTS, ETC.—A department will be devoted to the free publication of subscribers' wants, practices for sale, change of location, etc.

SECRETARIES OF MEDICAL SOCIETIES will do us a favor by keeping us informed of dates of meetings of same, etc.

THE INFLUENCE OF LOCALITY ON THE PREVALENCE OF MALIGNANT DISEASE.

In the section on "Surgery" of our "Progress of Medical Science" will be found a brief excerpt of a more than ordinarily interesting article by Edward Noel Mason, in the *British Medical Journal* for March 12th, with the above title.

There is much food for thought in the suggestions therein contained, and we think it would be a wise plan to attempt a thorough and world-wide investigation of this subject.

Of all serious diseases affecting humanity there is less known as regards geographical distribution and prevalence of malignant neoplasms than any other form of disease.

In Hirsch's monumental work on "Geographical and Historical Pathology" only eight pages are devoted to this subject, and as Hirsch himself explains this is due only to the lack of any general knowledge on this highly important question: might not this investigation lead to some clue leading to the detection of the etiology of cancerous growths? In the paper by Mason, to which we have just referred, the statement is made that cases of malignant disease tend to group themselves chiefly about the low lying land in the neighborhood of the sluggish streams, or where there is little

fall. With this view we cannot agree. His generalization is opposed by the fact that, in Norway, cancer occurs mostly in the mountainous districts and at considerable elevations. To some extent, no doubt, along the shores of the fjords, but least of all on the open coast. In Mexico the high table-land is more subject to cancer than the low plains; again, in Switzerland, an entirely mountainous country, with rushing streams and torrents, instead of sluggish streams, cancer is very common. It is a sight of daily occurrence in the goitrous sections of Switzerland to see patients whose apparently harmless cystic and fibrous goiters have become malignant.

A comprehensive knowledge of the minute geographical distribution of malignant neoplasms is much to be wished, for the sake of the light it might throw on the etiology. Why is it that some countries are practically exempt? In Greenland and Iceland malignant growths are extremely uncommon, in Turkey the same, while a very decided immunity from cancer is enjoyed by the North African countries of Egypt, Tunis, Algiers and Abyssinia. In China, on the contrary, malignant neoplasms are very common.

The United States, presenting as they do, in large areas, mountainous, paludial and other physical configurations, with all climates from the Arctic to the Tropical, much light on this subject could be obtained without being compelled to rely on foreign statistics or inferences. We commend these ideas to the gentlemen who attend national and state medical meetings, as more worthy of their serious consideration, and the results of which would be more beneficial to the human race than the rather monotonous and dreary reiteration of "interesting (or rare) cases."

BLACK-WATER FEVER AND QUININE.

We reproduce elsewhere in the "Journal" a brief resumé of an excellent paper on "Black-water Fever in Africa," by S. K. Smith, from the London Lancet for March 19th, and call particular attention to the fact that the experience in Africa coincides with ours in America in regard to the action of Quinine. This so-called black-water fever is what we here call "malarial hæmoglobinuria," and most practitioners agree that Quinine should not be used in this condition, although Thayer, Osler and others in the North and in countries where it is not common differ, on theoretical grounds, from practitioners whose experience has taught them better. These professors and book writers are much more liable, from inherent snobbishness, to believe what they see in the London Lancet, than that which appears in our native journals, therefore, we commend to their particular attention the Lancet for March 19th, and the work just issued in Leipzig, by Plehn, who records 1,000 cases of malarial hæmoglobinuria treated by him on the gold coast of Africa.

SURGEONS FOR THE NAVY.

With war before us it becomes a matter of great interest to consider the status of medical men in that branch of the service which in all probability will bear the brunt of the burden. It has been a notoriously scandalous condition which has prevailed in our navy towards medical men, treated by officers of the line as inferiors in social position, and subjected to indignities unworthy of gentlemen. The naval service should be, and easily could be, the most popular and attractive service to ambitious young men in our country, but of late years it has been nearly impossible to get men to fill the vacancies occurring in times of peace. Let us hope that the present agitation may force the attention of our legislators in Congress to the anomalous condition, and be the means of rectifying the deliberate slight imposed upon a superior class of men by the snobbish officers of the line. The American Medical Association, about to assemble in Denver should memorialize Congress on this subject, and by wielding its broad influence, put the surgeons of our navy in the same position now enjoyed by the medical officers of our army, where the matter of official rank and title has been settled to the mutual satisfaction of all parties.

While speaking on the subject of war, it is a matter for just pride to observe the courage and patriotism of our younger brethren who have volunteered in such great numbers for the most dangerous service in time of war, that not one of ten who has volunteered could possibly be accepted. A surgeon in the navy, during battle, stands in as dangerous a position as do the combatants.

THE SOUTH CAROLINA MEDICAL ASSOCIATION.

The Forty-eighth Annual Meeting of this Association was held at Harris Lithia Springs on the 14th and 15th of April. This was one of the most interesting and successful meetings in the history of the Association, the attendance of membership being the largest for many years. Those who attended were well repaid for the trouble they took to be present.

The number of papers read was large, and many of them above the average usually presented, while the discussions were spirited and interesting. We are pleased to announce to our readers that we will publish a large number of these papers.

The social features of the meeting were very attractive, the crowning event of which was a banquet given the Society by Mr. T. J. Harris, proprietor of Harris Lithia Springs.

Dr. O. B. Moyer was toastmaster, and the responses by Drs. Kollock, Simpson, Houseal and others, brought forth rounds of applause, while the champagne "freely flowed." The banquet ended by a vote of thanks to their host, T. J. Harris, for his bounteous hos-

pitality, which the Association appreciated, proof of which, they adjourned to meet at Harris Springs the first Wednesday in April, 1899.

FLORIDA MEDICAL ASSOCIATION.

The 25th annual meeting was held in Jacksonville, April 26 and 27, with Dr. R. B. Burroughs, of Jacksonville, President; Dr. R. L. Harris, Orlando, and N. A. Williams, Dade City, Vice-Presidents; J. D. Fernandez, Jacksonville, Secretary and Treasurer. At 11 o'clock Dr. Solace Mitchell, Chairman of Committee of Arrangements, called the meeting to order and introduced Rev. E. W. Florence, who, in a short prayer, invoked divine blessings. Then followed the reports of the various officers and committees. At 7:30 p. m. the president delivered an address followed by Dr. B. G. Abernathy who delivered the annual oration on "The Advance of Medical Science."

The following papers were presented; "Rational and Philosophical Method of Relieving Asphyxia in the Newly Born Fœtus," by Dr. Sheldon Stringer, of Brooksville; "Pemphigus, with Report of Three Cases;" also "Report of a Case of Innominate Aneurism, and Medical Treatment Employed," by Dr. R. P. Izlar, Waycross, Ga.; "Gunshot Wounds," by Dr. G. H. Altree, Port Tampa City; "Dry Antiseptic Treatment of Wounds, as Opposed to Moist Dressings," by Dr. John C. Peyton, St. Francis; "Case of Gunshot Wound of the Brain, with Hemiplegia," by Dr. Theo. Turnbull, Monticello; "Infant Feeding," by Dr. Luther S. Harvey, Crescent City; "State Medicine," by Dr. Joseph Y. Porter, Key West; "Report upon Quarantine Conference, held at Mobile," by Dr. R. P. Daniel, Jacksonville; "Water," by Dr. E. L. Stewart, Starke; "The Drug Habit," by Dr. C. R. Oglesby, Barton; "Qualification for a Health Officer," by Dr. T. S. Anderson, Carabelle; "Hygiene," by Dr. N. A. Williams, Dade City.

The following officers were elected for the ensuing year: President, Dr. R. P. Izlar, of Waycross; Vice-Presidents, Dr. W. L. Hughlett, of Cocoa, and Dr. T. S. Anderson, of Carrabelle, and Dr. J. D. Fernandez, of Jacksonville, Secretary and Treasurer.

The next business was the selection of a journal for the official organ of the Florida Medical Association, and we are pleased to announce that the GEORGIA JOURNAL OF MEDICINE AND SURGERY was unanimously made the official organ of the Florida Medical Association.

The social features of the meeting was an excursion on the St. Johns River at 11 a. m. to 1 p. m., and a reception from 8 to 11 p. m. Wednesday at the residence of Dr. and Mrs. Solace Mitchell, the latter we regret exceedingly to have missed.

The Association adjourned to meet in Jacksonville on the third Wednesday in April, 1899.

ASSOCIATION OF SURGEONS OF SOUTHERN RAILWAY COMPANY.

The third annual meeting will convene at the Hygeia, Old Point Comfort, Virginia, June 21 and 22, 1895. All surgeons of the Company and controlled lines are eligible for membership. A cordial, fraternal invitation is extended to the Surgeons of the Norfolk and Western, Chesapeake and Ohio, New York, Philadelphia and Norfolk, Atlantic and Danville, and Norfolk and Southern Railroads, and of the Atlantic Coast Line, and the Seaboard Air Line, and to members of the medical profession contiguous to Old Point, to attend and participate in the deliberations of the session. Titles of papers (limited to twenty minutes) should reach the Secretary by June 5th, to appear in program. Hygeia Hotel special rate \$2.50 a day. Transportation for surgeons of Southern Railway and controlled lines, and dependent members of their families, can be secured by application to the President of the Association, Dr. C. M. Drake, Atlanta.

It is proposed, at the same time and place, to hold a conference of chief surgeons or other medical representatives of the principal railroads operating in Virginia, West Virginia, North and South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Texas, Arkansas, Tennessee and Kentucky, for the purpose of determining the advisability of forming a Southern Association of Railway Surgeons. There seems to be many good reasons for such an organization and we will be glad to see the Southern Surgeons organize the proposed association.

THE GEORGIA MEDICAL ASSOCIATION.

The forty-ninth annual session of the Georgia Medical Association was held at Cumberland Island, April 20, 21, and 22. Many valuable and important papers were read, one interesting surgical case was presented, and pathological specimens and foreign bodies exhibited that had necessitated skilled surgical operations.

Cumberland Island is a pleasant place for an outing, but is a very poor place to hold a scientific conference, on account principally of its inaccessibility. Undoubtedly many physicians would have been present had it been at some place more easily reached and more quickly gotten away from. There will be no such excuse next year as the meeting will take place in Macon, the home of the president, and every physician in Georgia should not only be present at this the 50th annual meeting, but should become an active working member. In unity there is strength, and to those who may feel despondent with the cares, hard work and poor collections incident to practice we only have to say that the Lord helps those who help themselves. Therefore, if you have something in your mind either legislative or medical that will benefit your brethren

or human kind come and tell it, if you think you have nothing come, and you will be quite sure to return with perhaps more than you brought. It cultivates a better, more friendly feeling, and stimulates the latent energy to better and harder work. There is no reason why physicians should be secondary in their fees and emoluments to lawyers and politicians. They, as a rule, know more, but unfortunately act less and with little or no concert.

We gladly announce that this journal will have the honor and pleasure of publishing many of the valuable papers, in the order in which they are received.

Dr. Howard J. Williams, of Macon, was elected President, and Dr. T. S. Hopkins, of Thomasville, and Dr. Isham H. Goss, of Athens, Vice-Presidents; Secretary, Dr. R. H. Taylor, Griffin; Treasurer, Dr. E. C. Goodrich, Augusta.

EDITOR'S TABLE.

DAYTONA, FLA., April 15, 1898.

St. J. B. Graham, M. D.,

DEAR SIR: I have seen stated that a physician of Rio Janero (or vicinity) has discovered a specific for yellow fever, as Quinine is for malaria. So much is it believed that he is receiving great honor and reward from his government. Let us have full details in your valuable Journal at the earliest moment possible, as we may need them soon.

Yours very respectfully,

GEO. E. WALTON.

In answer to the Doctor's kind letter, we would like to state that we have not heard of the discovery of a true specific for yellow fever from any reliable source. Professor Sanarelli of Monte Video is using a serum, an anti-toxine of his own discovery and preparation, for which much is claimed. We will gladly give details in an early issue. We beg to thank Dr. Walton for his kind inquiry. [EDITORS]

Our old and valued friend "Mathews Quarterly Journal of Rectal and Gastro-Intestinal Diseases," than which no journal in its line was more useful or more generally appreciated, has changed name (and we hope only in name), to appear henceforth as a monthly, under the title of "The Louisville Journal of Surgery and Medicine." In its own original line Mathews Quarterly has been a credit to American medical journalism, and it is with selfish regret that we note the change, while offering our best wishes for its continued success and prosperity under a new name and on a different plan. It is rather a novelty nowadays to see a "special" journal turn to generalism.

For sale. Round trip tickets to Denver to the meeting of the American Medical Association, Good 30 days. June 7th to 10th, \$25.00. Write us. We can save you money if you are going.

The latest addition to our exchange table is the *Journal of the Alumni Association of the College of Physicians, Baltimore, Md.* The first issue comes well freighted with eight or ten original papers by members of the Alumni Association. While not excluding MSS. from other sources, still the *Journal* prefers papers from its Alumni. The *Journal* is under the editorial management of William S. Gardner, M. D., with William J. Todd, M. D., business manager.

Subscription price, \$1.00 per year, issued quarterly. The writer (an *Alumnus Class 91*) wishes Bro. Gardner and the *Journal* success.

The *Dominion Medical Monthly* and *Ontario Medical Journal*, under the editorial management of Brattie Nesbitt, B. A., M. D., F. C. S., with a long list of territorial editors, large octavo textural pages, 50 monthly, \$1.00 per annum, published in Toronto, Canada, contains several original articles of merit, together with the gist of contemporary medical literature of practical interest to all medical practitioners. It is well filled with advertising, 90 per cent. of which is from houses in the United States. We give the *Journal* a hearty welcome to our exchange table.

BOOK REVIEWS.

The Surgical Complications and Sequels of Typhoid Fever.—By Wm. W. Keen, M. D., LLD., Professor of the Principals of Surgery and of Clinical Surgery, Jefferson Medical College, Philadelphia; Vice-President of the College of Physicians, of Philadelphia; Membre Correspondent Etranger de la Société de Chirurgie de Paris; Membre Honoraire de la Société Belge de Chirurgie. Based upon tables of 1,700 cases, compiled by the author and by Thomas S. Westcott, M. D., Instructor in Diseases of Children, University of Pennsylvania; Visiting Physician to the Methodist Episcopal Hospital, Philadelphia. With a chapter on the Ocular Complications of Typhoid Fever, by George E. de Schweinitz, A. M., M. D., Professor of Ophthalmology, Jefferson Medical College; Professor of Diseases of the Eye, Philadelphia Polyclinic; Ophthalmic Surgeon to the Philadelphia and Orthopedic Hospitals. And as an appendix The Toner Lecture No. V. Price \$3.00 net. Philadelphia. W. B. Saunders, 925 Walnut Street. 1898.

This work is of absorbing interest and great value, written in a most scientific and perfectly clear manner, and places at the disposal of the reader a fund of valuable information, which could not easily be obtained elsewhere. It covers in various parts the pathology of surgical complications, typhoid gangrene, typhoid affections of the joints and of the bones, typhoid abscesses, cerebral complications, affections of the larynx, of the pleura, lungs and heart, the esophagus and the stomach, intestinal perforation, the liver and the gall bladder, the spleen, affections of the sexual organs, and specific mixed in-

fections. Chapter XX treats of the ocular complications and Chapter XXI on conclusions, The Toner Lecture No. V, on the Surgical Complications and Sequels of the Continued Fevers, closing the work. The illustrations are excellent, the print is large and well spaced, and the binding is handsome. To those who only know typhoid fever as a systemic disease affecting Peyers patches the book will be a revelation.

An American Text Book of Genito-Urinary Diseases, Syphilis and Diseases of the Skin.—Edited by L. Bolton Bangs, M. D., and W. A. Hardaway, A. M., M. D. Philadelphia. W. B. Saunders. 1898.

We have had occasion before this to speak highly of the series of "American Text Books," issuing from the press of W. B. Saunders, and have before us a worthy successor of what is already a classic series. The title above given describes accurately the scope of this large work, the authorship of which represents the ablest talent in each department which our country can afford; edited by men who need no introduction to the American medical public. It would be obviously impossible in the short space available for this review, to mete out justice to each of the forty-seven distinguished collaborators, and it shall be our aim, therefore, to speak of the work only as a whole.

From the critic's point of view we have only one fault to find with the book, and that is on the question of inserting a chapter on "Urine Analysis" in a work of this character. It should not be necessary, as every physician is supposed to have one or more "manuals" and special reference works on this important subject. The chapter, itself, is an excellent one, and our objection refers, of course, only to the propriety, or rather necessity of its appearance in this place, and this criticism refers also to the chapter on Anatomy and Physiology of the Skin (pp. 765 to 778).

We notice that the classification of skin diseases of Hebra, as modified by Brocker and Morrow, is the one adopted in the system, and agree with the editors that for the present it stands as the best for general descriptive purposes.

The paragraph on X-Ray Dermatitis, by Joseph Grindon, we believe to be too much influenced by the opinions of Gilchrist, of Baltimore, whose conclusions have been shown by excellent observers to be erroneous, and we regret that only two-thirds of a page has been allotted to this vexed question.

The book is profusely and richly illustrated. There are twenty full page colored plates, adding greatly to the value of the work as well as to its artistic appearance. We do not quite understand how publishers can afford to issue works of this size (1,230 pages), with hundreds of fine illustrations for seven dollars. This is a mystery to those who know what it costs to issue ordinary small works with but few illustrations; of course, it is all to the advantage of our craft, and the cheaper good works become the better off will be the average practitioner, who would like to keep up with the times, but finds it

a wellnigh impossible task when counting the cost. Every practitioner should know more about Genito-Urinary and skin diseases than is apparently the case, and to all we can recommend this sumptuous volume as representing the best knowledge of the day, presented in a condensed, concise and clear manner.

Yellow Fever in the West Indies.—By Izett Anderson, M. D., Edin, Extraordinary Member of the Medical Society of Edinburgh; Honorary Member of the Institute of Jamaica; formerly Resident Surgeon of the Colonial and Seaman's Hospital, Georgetown, British Guiana; Member of the Government Medical Council; Principal Medical Officer of the Public Hospital; Surgeon of the General Penitentiary, &c., Kingston, Jamaica. H. K. Lewis, 136 Gowers Street, W. C., London, Eng. 1898. Price, 3s 6d.

It is a great pleasure to come upon a book like this, for it bears out the adage that "the best goods are done up in the smallest packages." This little book holds within its 106 pages information upon this disease that amounts to a library. It is written by a modest but skilled practitioner of more than thirty-five years' of experience in this disease. In his preface he says, "It will be observed that I have written but little on the pathology and bacteriology of the disease. Information on these points can easily be obtained from other sources, and as the following pages are the outcome of personal observation, I did not think it advisable to deal with subjects of which I knew very little, having had under the stress of more important work, no time to devote to their investigation. I know nothing of yellow fever elsewhere than in the West Indies, and it is possible that what I have written may not correspond with the experience of practitioners in the Southern States of America, or in other places, for the symptoms and results of treatment vary much at different times and in different places.

"There are few works on the principles and practice of medicine which do not contain an article on yellow fever, but with few exceptions, they do not appear, to me, to deal with the salient points most deserving of attention when the disease has to be faced and treated. I wished to enforce points which are of great importance in yellow fever, and which have not, I think, elsewhere been dealt with in a sufficiently emphatic manner. Whatever its imperfections this little book has been written with the sincere desire of assisting my younger professional brethren."

In regard to upturning the soil the author says, "In Kingston, Jamaica, during the past twenty-five years the soil has been extensively turned up on three occasions. In 1872 and 1873 the new water pipes were laid; in 1876 gas pipes were laid for the first time, and in 1897 drainage pipes were being laid. On each of these occasions there was a severe outbreak of yellow fever. The remedial measures proposed for yellow fever are as numerous as those for cholera, and as equally unsatisfactory, for none have been suggested for either which can in any way be pronounced to be specific, or

anything approaching to it." Yet the author gives a full resumé of treatment, diet and nursing, which is mostly original. At this time the book is of special interest to the southern practitioner, and it is up to date and thorough. The author says a great deal, and gives many valuable points in a very small space. We regret that more books are not written in the same style. The print is excellent and it is well bound.

The Journal will receive and transmit orders for any books reviewed in its columns.

Transactions of the Medical Society of the State of North Carolina.—Forty fourth annual meeting held at Morehead, City, N. C., June 8, 9 and 10, 1897.

Following the society reports and proceedings comes the list of valuable and interesting papers, which are upon practical and well selected subjects. The transactions will prove a valuable addition to and grace any library. They are well printed and bound.

The next meeting of this society will be held in Charlotte, first Tuesday in May, 1898, and if their list of papers is as good as those of last year, the meeting will be of great interest and profit to those fortunate enough to be present.

\$2 00 for a year's subscription to the GEORGIA JOURNAL OF MEDICINE AND SURGERY is money well invested. We intend to make it the best medical journal published in the South. To do this **your** subscription is necessary to help us in realizing the ideal of a purely ethical journal. Your subscription, accompanied by \$2.00, entitles you to receive the JOURNAL each month till July, 1899 (14 months). Subscribe now.

PROGRESS

—OF—

MEDICAL SCIENCE.

MEDICINE.

[NOTICE.—Commencing with the July number of this journal (No. I, Vol. III) the various departments will be in charge of a competent staff which is now being selected. A department of Railway Surgery will be added to those already established.]

BLACK-WATER FEVER.—In Central Africa, and indeed, throughout the whole of tropical Africa, says Mr. Stanley Kellett Smith in the *Lancet* for March 19th, there is a bilious hæmoglobinuric fever called “black-water” fever. It occurs, as a rule, only in those who have been for some considerable time in the country and who have suffered from repeated attacks of ordinary fever. It seldom or never attacks the newcomer, but it may appear rapidly in former residents of a malarious district upon their return to it after an absence in a healthy climate. Europeans are the chief sufferers, although cases are not rare among the natives.

The clinical features of the disease are those of a severe remittent fever. The cold stage is usually well marked; there may be severe itching and bilious vomiting together with diarrhoea, and bleeding from the mucous tracts sometimes occurs. Finally, there are the cardinal symptoms referable to the rapid and extensive disease—namely, quickly developed jaundice and the passage of dark porter-colored urine containing oxyhæmoglobin, methæmoglobin, and urobilin.

Many patients recover, says the author, and many die. A good index of its fatality, he thinks, is given by the fear in which “black-water” fever is held by the white man. It must always be regarded as a very serious illness. Death may ensue from enormous destruction of the red blood cells, when the symptoms are similar to those of profuse hemorrhage; from uræmic poisoning resulting from total suppression of the urine; and from interference with some vital cerebral center owing to the blockage of capillaries by masses of malarial parasites, or to the actual hemorrhage. As a remote sequence the kidneys may become cirrhotic from the nephritis accompanying and following the disease.

The pathology of “black-water” fever, says the author, is as yet an almost virgin field, and the literature on the subject is so scant and contradictory as to afford few points of definite argument. Whatever its pathology may be, it is certain that there occurs an

enormous destruction of the red cells, and that there arises great irritation of the kidneys from the excretion of toxic products. The first is self-evident; in two cases reported by Boison the blood count fell respectively from 1,700,000 to 670,000, and from 2,400,000 to 1,600,000 in twenty-four hours; the second is shown not only by clinical signs, but also by post-mortem examinations. Theoretically, then, quinine is contraindicated in "black-water," and, as a matter of fact, experience shows that its employment in the earlier stages of the disease, when the fever is still active and the chief clinical sign yet marked, is not attended by very effectual results. This has been hitherto explained upon the ground that "black-water" fever is not purely malarial, that it is a separate infection, or that it is a malarial plus a separate infection. Taking the opposing view—namely, that "black-water" fever is acute malarial fever pure and simple—is it not reasonable to suppose, asks the author, that the failure of the quinine is due to its aggressive action upon the malarial parasite being cloaked, in a system the equipoise of which is so seriously disturbed, and in which the red cell has possibly lost some of its powers of resistance, by its own chemical effects upon the blood and the secretory organs?

"Black-water" fever, he continues, gives the traveler the impression of being indissolubly bound up with malarial process, and the more intense that process in any particular district or at any particular season the more frequent is the "black-water" complication. Its geographical distribution is of much interest. It occurs only in malarious countries and attracts most attention in tropical Africa and the islands adjacent, the West Indies, central and southern parts of North America. Every malarious country, however, does not of necessity show much "black-water." The great and striking example is India, where the cases are so very rare that many people engaged in commerce, and in the civil and military services in the different parts of the continent, with life-long experience of the Indian fevers, have never even heard of the "black-water" fever and fail to recognize its clinical description from any instance in their knowledge. Arguing from this, Manson says: "Considering the peculiar clinical manifestations it gives rise to and the fact of geographical distribution, I think it very likely that the parasite of malarial hæmoglobinuric fever is specifically different from the malarial parasites usually met with in Europe and perhaps in India." A perfectly fair suggestion, the author thinks, but one which opens up a vista of numerous "breeds" of the malarial plasmodium—a breed for each frequent and distinct complication, a breed for the malarial hæmatemesis of Laurence-Marques, a breed for the curious anterior tibial paralysis of Likoma, and so on. Boison, in the report of by far the most exhaustive necropsy of the disease published—a case occurring in a soldier invalided from Madagascar—says: "The malarial parasite was present in extraordinary numbers, free and associated with red blood-corpuscles,

seven out of ten red blood containing it." Unfortunately, no identification of the particular parasite in this instance with the ordinary malarial parasite of Madagascar is given. Valuable information regarding the organism of "black-water" may accrue from further investigation of the widely distributed "cattle malaria," which is so far akin to the human malaria that it is "caused by an endocorpuscular parasite, develops only in malarial neighborhoods and seasons, is most favorably influenced by quinine," and in its worst and most fatal form is accompanied by the passage of bloody urine.

The following conclusions, Mr. Smith thinks, may be summed up: That "black-water" fever is distinctly malarial in nature; that there is no evidence of any specific difference between its parasites and the ordinary malarial parasites of the country in which it occurs; that its parasite exists in great numbers in the blood of an infected person; that enormous destruction of the red cells takes place by habitation of the parasites and possibly also by direct action of toxins produced by them; that the derivatives of the color-plasma of the destroyed cells become dissolved in the blood, its serum showing the presence of oxyhæmoglobin, hæmatin, urobilin (Boison); that the liver and spleen, from the circumstances of a present attack and from the effects of previous malarias, are unable to manipulate these derivatives; that they are therefore excreted by the kidneys, which in the process may become so inflamed as to show actual hæmorrhages—a result favored by the cachexia of the white man dwelling in a malarious country. So much, the author adds, for a description which rests partly on speculative grounds. What is a certainty is that this disease, so little understood, is carrying off scores of our best men in Africa, is responsible for the deaths of many of the most intrepid of our pioneers, is checking the advance of civilization in great tracts of country otherwise well suited for the white man; and it would be well, he thinks, were those in authority, and who have the power, to give independent stimulation and help toward the elucidation of the pathology and treatment of this "black-water" fever.

THE INFLUENCE OF LOCALITY ON THE PREVALENCE OF MALIGNANT DISEASE.—In the *British Medical Journal* for March 12th, Dr. Edward Noel Mason gives the result of an investigation begun three years ago in regard to the apparently disproportionate frequency in the occurrence of malignant disease in some districts as compared with others. In one locality, he says, cases of malignant disease occurred with alarming frequency, while in another in close proximity to the first but few were met with. He states that he spent considerable time in ascertaining and making a record of all the deaths from malignant disease which occurred in the various districts, and that all the statistics seem to point to one thing very clearly—namely, that the cases of malignant disease tend to group them-

selves chiefly about the low-lying land in the neighborhood of the sluggish streams, or where there is little fall, and where the subsoil must in consequence be but insufficiently drained. Furthermore, he says, apart from statistics, he is convinced from direct observation made, especially in the Nuneaton district, that the closer to the stream the more frequent the occurrence of malignant disease. He thinks it may be that this connection holds good only where the stream is sluggish, contaminated by sewage, and liable to flood, as was the case in all districts he specially investigated.

As further bearing out this connection, he refers to a large parish in the north of England from which he was able to obtain some statistics. In this parish, the population of which is four thousand, and which covers a wide area, nearly all of which is on high, well-drained land with no sluggish streams, only five cases of malignant disease occurred in ten years. One corner of this parish slopes rapidly down to a river, and it is in this part of the parish, on the first rise above the river, that three of the five cases occurred, while the remaining two arose in a part of the parish which, though on absolutely high land, lay in what was relatively a hollow in which the ground was always marshy and undrained. The percentage mortality for this district is 0.125, as is also roughly that of a certain district in Derbyshire which chiefly consists of upland country—that is, the percentage for these chiefly upland districts is only one-seventh that for the Stratford-on-Avon district, and only one-fifth that for the Atherstone and Nuneaton districts.

Such a pronounced difference, he thinks, for different localities as these statistics show cannot be without meaning. The facts, he says, point most strongly to some direct connection between residence in the neighborhood of sluggish streams or ill-drained, sodden, contaminated soil and the prevalence of malignant disease. Some external agency must be admitted as one of the factors in the causation of malignant disease, and, whatever its nature, must be produced by, or have its habitat in, or at least be directly connected with, stagnant or nearly stagnant water or ill-drained soil. Persons residing in the near neighborhood of such physical conditions would necessarily be more frequently brought under the influence of this external agency than those living at a greater distance. In this direction only, he says, can we seek for an explanation of the marked increase in mortality from malignant disease in those districts where such conditions obtain. This external agency must act in one of two ways, either as the direct exciting cause or as an indirect predisposing cause. In the former case one must presuppose the existence of a micro-parasite as most probably the chief factor in the causation of malignant disease. This assumption explains certain peculiarities of malignant disease itself as well as of its distribution. In the latter case one must suppose that certain climatic conditions so influence the human body as to prepare the way for the development of malignant disease.

If we assume, the author continues, that one of the factors in the causation of malignant disease is a micro-parasite, we must agree that such micro-parasite is most probably a protozoon and may be comparable in some respects with the protozoon or protozoa associated with the various forms of malarial disease. If such an organism exists, it is not improbable that it may undergo changes both within and apart from its host, and through the medium of discharges gain access to streams or ill-drained soil. Here it may find suitable media for its development and multiplication. Under such circumstances it would not be unreasonable to conclude that, as in the case of the organisms connected with malaria, exhalations from water or sodden soil thus impregnated might be the means of conveying the infection: this would also explain the undoubted existence of "cancer houses." The perfectly healthy human body may no doubt be quite proof against any amount of such organisms; but, given favorable conditions, such as chronic tissue irritation, traumatism, degeneration of tissues from disease or senile changes, or the presence of "foetal remnants," as suggested by Virchow, added to which may possibly be in some cases individual or inherited proclivity, and a lodgement of the micro-parasite might follow.

That the development of micro-parasites in animal tissues may produce proliferation of cell elements is unquestionable, as, for instance, in the case of psorospermiosis affecting the liver in rabbits, and also in the case of Paget's disease in the human subject. Whether such proliferation be due to the organism directly or to the chemical products of its growth and development is of secondary importance.

Dr. Mason states that many competent and careful observers have described appearances found in microscopical preparations of both carcinomata and sarcomata consistent with this view, and that another fact, which a study of the cases he has collected brings out, indirectly supports this assumption. When the organ or region in which the disease has developed is noted, it appears that in those districts on higher and better drained land where malignant disease is less common, a large proportion of the cases which do occur have some more or less obvious predisposing cause, and, he is inclined to think, runs a more chronic course. Here such cases as surface epitheliomata following definite irritation, carcinomata of the breast, uterus, or rectum are found in greater proportion. In close proximity to the streams, on the contrary, malignant disease of some of the less commonly affected organs or portions of the intestinal tract is found with unexpected frequency, and, he thinks, runs a more rapid course. This would suggest that in the neighborhood of the streams, where the infected agent would presumably be in greater abundance, malignant disease attacks organs which would escape under more favorable circumstances.

The author quotes Dr. Léon Noel, whose conclusions in the *Revue des maladies cancéreuses* are as follows: "Cancer regions exist

close to regions enjoying an immunity. These latter are generally in dry localities and some distance from streams. In these cancer regions one of two conditions prevails—either they are closely populated, or, if the houses be spread about at some distance from each other, a rivulet or stream connects them.”

Regarding the disputed question of heredity, Dr. Mason relates the following series of cases, the occurrence of which, he thinks, can hardly be explained without that factor: In one family of two generations numbering sixteen individuals reaching adult years ten have died; of these ten, three have died of carcinoma of the uterus, two of carcinoma of the stomach, and one of carcinoma of the liver, while of the six yet living one has a large tumor of the neck, and one a tumor of the arm, which has recurred after removal.

The facts which this investigation has brought out, and which may readily be confirmed by any one who will take the trouble to tabulate all the cases of malignant disease occurring in his own neighborhood, seem to him to be of considerable importance.

THE BUBONIC PEST.—Yamagiva gives the following clinical, histological and pathological review of this subject, occupying a separate issue of *Virchow's Archives*, Band 149:

1. The three main characters of the disease are sudden elevation of temperature, painful swelling of the accessible lymph nodes, and conjunctival hyperemia.

2. The presence or absence of cerebral symptoms and the localization of the lymphatic enlargements are valuable prognostic points.

3. Negative blood findings do not exclude the disease.

4. The inguinal glands are most frequently involved, and the peripheral glands generally are oftener involved than those more centrally located, the bronchial and mediastinal showing no characteristic changes.

5. The pathological changes in the lymph glands are hemorrhagic inflammation, with plebitis, necrosis and softening.

6. There are foci in the lungs (characteristic germ, hemorrhage, and necrosis), liver and spleen.

7. The virus is a bacterium; vesicular in form, staining intensely in the periphery and not in the center; varying morphologically from oval or round to bacillary; decolorizing by Gram's method; found mostly between the cells in the lymph sinuses, the cavernous spaces, and the interstices of extra-glandular tissues; other bacteria (diplococci) being also found at necropsy, but not during life.

8. The bacteria enter through the skin or contiguous mucous membranes without microscopic lesion, reaching the lymph glands, the chief foci of disease.

9. The disease is no septicemic disease in the bacteriological sense, but is a toxemia, whence early eradication of the lymph glands is the best treatment, before administration of the serum therapy.

10. Prophylaxis consists in personal cleanliness, burning of the cadavera and the nuce of S6-éki, disinfection of the urine, wash, bedclothes, feces, etc., all of which may contain the virus.—*Medicine*, April, 1898.

Dr. J. P. Barber in a paper (N. Y. Med. Jour.) on "The Comparative value of the Diazo Reaction and the Blood Serum test in the Diagnosis of Typhoid Fever." concludes as follows :

The serum test has proved the more reliable, it having appeared in every case but one. So far as my experience goes, it has appeared in no other disease.

The diazo reaction has the advantage of having appeared earlier in the disease in nearly twice the number of cases. In almost every case in which the serum reaction appeared first the diazo reaction was present on the following day, while in many cases the serum reaction was absent for several days after the diazo reaction was found.

Ehrlich's test is by far the better for the general practitioner. No expensive laboratory apparatus is required. It is easily and quickly made, and with a little experience the reaction can be detected in nearly every case. The diagnosis should always be confirmed by the presence of the serum reaction.

EXPERIENCE WITH YELLOW FEVER AT NEW ORLEANS DURING THE RECENT EPIDEMIC.—As a result of pathologic study at the Isolation-Hospital, New Orleans, during the recent epidemic of yellow fever, the following conclusions are drawn: 1, that albuminuria and the presence of bile in the urine are constant symptoms of yellow fever, appearing about the fourth day in mild and earlier in severe cases; 2, that the presence of malarial hematozoon does not preclude the possibility of yellow fever; 3, that in solutions one to ten yellow-fever blood does not give any reaction with pure cultures of the typhoid bacillus; 4, that excepting the diminution of hæmoglobin, the blood does not show any marked changes; 5, that the most characteristic pathologic changes in the organs are marked steatosis and congestion of the liver, kidney and heart, the marked congestions, erosions and hemorrhages of the stomach and intestines, and, usually, absence of lesions in the spleen and lungs. The other tissues present marked icterus and congestion; 6, that the bacillus isolated and with which experiments were conducted, is identical with that reported by Sanarelli as the bacillus icteroides, and the results obtained would justify its consideration as the special cause of yellow fever.

LEFTHANDEDNESS CURED BY SUGGESTION.—Rothschild (*Jahrbücher für Psychiatrie*, xvi, 3; *Wiener klinische Wochenschrift*, March 10 1898) relates the case of a left-handed girl, four years old, well, developed and of a healthy family, whom he cured by hypnotizing

her and suggesting to her to use her right hand. She began to use her right hand oftener than the left, and at the time of the report, two years and a half later, she continued righthanded.

SURGERY.

SEMINAL VESICULITIS AND PROSTATITIS.—Dr. Geo. K. Swinburne (*Jour. Out. and Gen.-Urin. Dis.*, 1898, CLXXXVI, 119) says that physicians have not recognized the importance of vesiculitis and prostatitis occurring in cases of chronic gonorrhœa, and he believes that these conditions will be found in fully 35 per cent. of such cases. He then outlines the history and treatment of three cases which had come under his care, and gives the following conclusions:

1. We find a condition of the prostate and seminal vesicles in patients who have never had gonorrhœa, which seems to be of a catarrhal nature, which may or may not give rise to symptoms. These symptoms, if present, are apt to be neurasthenic in character: they are benefited by local massage.

2. In chronic urethritis and at the end of prolonged urethritis, or where the posterior urethra has become invaded, the seminal vesicle and prostate should always be examined.

3. Where epididymitis has occurred, seminal vesiculitis is very apt to exist also. This, however, may clear up spontaneously.

4. Tubercular processes should, if possible, be excluded, for massage is apt to render their condition worse.

5. Where live spermatozoa are found by stripping after the urine has stood for some time, it is a good thing that the mucous membrane of the seminal vesicles secretes the proper fluid for preserving the life of the spermatozoa.

6. Stripping the seminal vesicles is a good method to try as a test for sterility, as a test to see whether the ducts between the testis and the seminal vesicle of corresponding side are patent. It may, however, fail.

7. It is necessary to train the finger in making examination for this condition, as in making a vaginal examination.

8. Sometimes at the beginning of treatment nothing or but little material will be expressed. If the treatment is continued, more and more material will be expressed.—*Am. Med. Surg. Bull.*

THE HUNTERIAN LECTURES ON SURGERY OF THE KIDNEY.—Mr. Henry Morris, F. R. C. S., thus summarizes his second lecture (delivered at the Royal College of Surgeons of England) on Renal Calculus; the Difficulties and Errors in Diagnosis in their Relation to Exploration of the Kidney; Unsuspected, Quiescent, and Migratory Calculi (*British Medical Journal*, April 9th):

The conclusions at which I have arrived are the following:

(1) That the aim of the surgical treatment of renal calculus should be to extend the application of nephrolithotomy, thereby restrict the necessity of nephrotomy and nephrectomy.

(2) That more frequently than not the failure to find a stone is not in reality a failure of treatment, because there are so many curable morbid conditions which mimic renal calculus, and which are discoverable only by exploration.

(3) That the theory that a stone in one kidney, whether that kidney is itself painful or not, reflects or transmits pain to the opposite kidney is quite unproved; that it is a dangerous theory, calculated to lead to very erroneous practice; and that the surgical principle with regard to exploratory operations should be that with pain, paroxysmal or continuous, on one side only, the kidney on the painful side should be explored.

(4) The nephrectomy for calculus conditions is not often called for, and should be done only in exceptional cases. Nephrotomy for calculus pyonephrosis is the proper operation, at any rate as a primary operation, because of the frequency of double calculus disease. Experience has shown that kidneys from which stones weighing eight hundred and thirty grains and one thousand three hundred grains have been removed are functionally sufficient to maintain life during the blocking of the ureter or suspended action of the kidney of the opposite side.

(5) That nephrectomy while the opposite organ is occupied by calculus is fraught with the greatest danger to life; whereas nephrectomy, after the opposite kidney has been freed of stone, will probably be followed by recovery from the operation and possibly by very good health for many years afterward.

(6) That when renal calculus causes reflected or transferred vesical or ovarian pain, the removal of the calculus will be followed by complete cure of the bladder or ovarian symptoms.

(7) That in some cases renal calculus conditions are attended by very remarkable nervous symptoms, sometimes with, sometimes without, high temperature, and that information as to the cause of these symptoms is needed.

(8) That unsuspected renal caculi are a source of very real danger to their possessors; and when, whether by accident or by the systematic examination of the urine, we have cause to suspect the presence of a calculus, we should recommend its immediate removal, regardless of the fact that it is not causing renal or transferred pain.

(9) That quiescent calculus is as dangerous to the individual as unsuspected calculus, and ought to be removed by operation.

(10) That the hitherto accepted teaching, that a renal calculus, if causing only mild symptoms, or attacks of severe colic of only recent occurrence, should be treated on the expectant plan, ought to be discarded as unsound in theory and dangerous in practice.

(11) That the same principle should be applied to renal calculus which has long been the rule in regard to vesicle calculus—namely, when suspected it should be searched for, when known to exist

removed, without waiting in the hope that it may become encysted or spontaneously expelled.

(12) That the very low mortality of nephrolithotomy puts this operation upon the same footing for renal calculus as lithotripsy in the most experienced hands for vesical calculus.—*N. Y. Med. Journal.*

BULLET REMOVED FROM A CERVICAL VERTEBRA ; DETECTED BY THE X-RAYS.—At a recent meeting of the Medical Society of the County of New York, Dr. A. M. Phelps presented a young man who, a year ago last November, while handling a revolver of No. 38 calibre, had accidentally discharged its contents into his neck near the thyroid cartilage. The place of lodgement of the bullet could not be determined at the time. He soon developed more or less paralysis of the left arm and experienced great pain in the shoulder, which extended down the back of the neck, and the neck was rigid and drawn to one side. Two surgeons had made unsuccessful attempts to locate the bullet by the x-rays before the case came to Dr. Phelps. After making several efforts with the aid of the x-rays and different x-ray machines, he finally succeeded in locating the bullet near the body of the third cervical vertebra. An incision was then made from the mastoid process of the occipital bone along the posterior border of the sterno-cleido-mastoid muscle nearly down to the clavicle. The sterno-mastoid muscle was pulled forward and the deeper muscles were drawn backward, thus exposing the transverse processes of the cervical vertebra. The nerves were also retracted. When the body of the third cervical vertebra was cut down upon a small discoloration was noticed, and this led into an opening. By means of the Girdner telephonic probe the bullet was easily located. A large portion of the cervical portion was cut away and the bullet removed. It had entered the canal and pushed the meninges forward, and was making pressure on the spinal cord. It had also injured the root of the third cervical nerve. The patient's recovery was uneventful. Without the aid of the skiagraph it would have been impossible to find the bullet. Lodged as it was in the body of the vertebra and invading the spinal canal, the bullet, if not removed, might have resulted sooner or later in total paraplegia.

SURGERY OF THE GALL-BLADDER AND DUCTS.—J. McF. Gaston, of Atlanta, (*Virg. Med. Semi-Monthly*, December 10, 1897) in a paper on this subject, is of the opinion that the prime question for consideration is the practicability of adopting some measure of treatment which shall restore the function of the liver, and preserve the office of the gall-bladder. In case the derangement should prove to be irremediable, excision of the gall-bladder is indicated, attention being appropriately directed to the operation of cholecystotomy, as first practiced by Von Langenbeck. When the common bile-duct remains impermeable an artificial connection of the gall-bladder

with the duodenum may be made, its claim to consideration resting chiefly upon the importance of the bile in the digestive and assimilative processes, during the passage of food through the upper portion of the small intestine. The entire removal of the gall-bladder, in cases of atrophy or degeneration of its tissues, has been resorted without serious interference with the biliary functions, except that the bile flows directly through the common duct into the duodenum instead of having a portion reserved in the storehouse for future use. The continuous discharge of bile by a direct outlet from the gall-bladder into the duodenum, when the common duct is entirely occluded, certainly fulfils the ends more satisfactorily than the formation of a cutaneous fistula for its escape externally. In excision of the gall-bladder the dissection of the adherent layers of the sac from the under surface of the liver does not seem to be called for, as in one of the author's canine experiments the outer wall of the sac underwent disintegration, while the adherent tissue was still firmly united to the under surface of the liver; thus the surgical procedure may be materially simplified in cholecystectomy. Excision or extirpation of the gall-bladder is not expected to supply the place of other processes for correcting its disorders, but is a dernier resort in view of the inadequacy of any means for restoring the functions of this organ and for rehabilitation of the surrounding structures. When the gall-bladder and cystic duct become obnoxious to adjacent tissues so as to cause local disorders and general derangement of health, they no longer observe the ends for which they are provided; their removal is, therefore, rational and philosophic. The operation is not warranted in cases of temporary obstruction of the cystic duct, which admits of relief by mechanical or other means, excepting when disorganization of the sac is imminent. In the record of pathological changes connected with biliary derangement, hepatic abscess may form when the biliary channels become affected from obstructions, with the presence of inspissated bile or concretions in the gall-bladder. Delay in undertaking the appropriate measure of relief brings disintegration of structure. Stenosis of the bile-ducts may be due either to foreign bodies within the ducts, diseases of its walls, or tumors external to ducts. With the light before us, it is clear that an effort should be made to overcome temporary obstruction, and if concretions exist which cannot be removed in either direction by pressure from without the canal with the fingers, an effective recourse is found in adopting the expedient for crushing the masses with padded forceps and leaving the fragments to be flooded out by the bile; this suits cases not requiring incision of the sac, though a temporary biliary fistula may be made. In comparing different measures adopted by surgeons for the relief of distended gall-bladder, their relative advantages depend upon the greater or less probability of restoring the bile to the intestines. Should bile be restored to its natural channel by an operation, the closure of the incision in the sac and

dropping it into the abdomen, with complete suture of the external wound, are advisable. With a view to diagnosticate distention of the gall-bladder, all tumors connected with the liver should be examined with care.

THE TREATMENT OF ACUTE URETHRITIS IN THE MALE.—This was the subject of a discussion before the New York Medico-Surgery Society, in which a number of well-known specialists participated. Dr. James Pedersen recommended that when a case of gonorrhoea is seen early, the patient should be told to use injections with a hand syringe of a 4 per cent. solution of argonin three or four times a day. As soon as the microscope showed that the gonococci had disappeared, this injection should only be used once or twice a day, and in its stead an astringent should be employed two or three times daily. This solution is made up preferably of $\frac{1}{4}$ grain each of zinc iodid and zinc chlorid to each ounce of water. Ordinarily, it is to be used warm, but if there is much irritation present, it is better to use the solution quite hot. This astringent injection gradually supersedes the solution of argonin, and as soon as the evidences of acute inflammation have disappeared, an effort should be made to repair the damage done to the mucous membrane by applications of solution of silver nitrate, beginning with a strength of $\frac{1}{2}$ grain and gradually increasing it up to 2 or 3 grains per ounce. These applications should be made with an Ultzmann syringe or a Bangs' syringe-sound, at intervals of from five to seven days. The use of hand-injections and of these applications should be done gradually and tentatively. It may even be necessary in order to complete the cure to apply a solution of silver nitrate, of the strength of 5 grains to the ounce, using for this purpose the endoscope. Dr. Robert W. Taylor, on the other hand, is not so favorably disposed towards the use of the newer silver salts and the various methods of applying antiseptics locally in the early stage of gonorrhoea. At this time, he relies upon rest, restricted diet, the use of alkaline drinks and hand-injections of warm concentrated boric-acid solution. He believes that by the use of potassium permanganate according to the Janet method, so much traumatism is afflicted, that while the acute stage is cut short, the submucous infiltration is actually increased, and the tendency is for the disease to become chronic and very intractable. He is still firm in the belief that in the declining stage much benefit is derived from the internal administration of cubebs and oil of sandalwood. When the mucoid character of the secretion indicates that the reparative process has begun, it is his practice to use very weak solutions of silver nitrate (1 gr. to the quart up to 1 to 10,000), sometimes alternating with a solution of sulphate of zinc and alum. The secret of success in the treatment of gonorrhea, he says, depends upon a thorough knowledge of how to use silver nitrate. Towards the end, he uses instillations in strengths varying from 1 to 10,000 to 1 to 500. Dr. Eugene Fuller described "a little wrinkle" that

will aid patients in properly using hand-injections upon themselves. The patient lies down and holds the urethra upward so that gravity will favor the filling of the urethra with the injection. This position is maintained for some minutes, thus insuring intimate and prolonged contact of the remedy with the diseased mucous membrane. Dr. Fuller objects to irrigations in the acute stage, and does not wholly approve of them in any stage. He is of the opinion that silver nitrate not infrequently irritates the urethra and favors a deeper migration of the gonococci. Dr. Samuel Alexander likewise spoke guardedly of the value of the irrigation treatment, because, as he said, even in skilled hands they were almost certain to do harm by the force of the injection. On the other hand, Dr. George H. Swinburne and Dr. C. H. Chetwood championed the irrigation treatment. They use a warm solution of potassium permanganate, 1 to 4,000 in the acute stage, and in the later stages, a solution of silver nitrate, or a 10 per cent. solution of argonin. Dr. Swinburne stated that he had found complications much less frequent since he had made it a rule not to force the solution past the cutoff muscle. Regarding the duration of a gonorrhea, the opinion was unanimous that an average of six weeks should be considered perfectly satisfactory. As to the possibility of aborting the disease, all but Dr. Taylor were agreed that such a result was so extremely rare that it could be practically looked upon as never occurring. Dr. Taylor, however, was positive that he could abort the disease in a fair proportion of cases.—*Philadelphia Medical Journal*.

A NEW METHOD FOR THE RADICAL CURE OF INGUINAL HERNIA.—By George Ryerson Fowler, M. D. (*Ann. of Sur.* Nov., 1897). Dr. Fowler describes at considerable length, and illustrates with excellent cuts, a new method for operating for the cure of inguinal hernia. The technique differs from the popular operation of Bassini in the transferring of the spermatic cord to the cavity of the abdomen instead of leaving it in the muscular wall.

He sums up the essential steps of the operation as follows:

1. A curved skin incision which furnishes easy access to all the parts involved in inguinal hernia.
2. Splitting the anterior wall of the inguinal canal from the external to the internal ring.
3. Isolation of the cord and sac together from the surrounding parts, after which these are separated from each other and cleared well up to the internal ring.
4. Double ligature of the deep epigastric artery, with sufficient space between the ligatures to permit of incision.
5. Cutting away of the neck of the sac and incision of the posterior wall of the inguinal canal and Hesselbach's triangle.
6. The cord is transplaced into the peritoneal cavity from the site of the internal to a point below the level of the pubic bone.
7. Broad approximation and suturing of the peritoneum and transversalis fascia in front of the cord for the space mentioned.

8. Obliteration of the internal ring and inguinal canal by accurate suturing, and strengthening of Hesselbach's triangle and the new point of emergence of the cord by outward displacement of the pubic attachment of the corresponding rectus muscle.

NEW METHOD OF SKIN GRAFTING.—(*Jr. A. M. A.*, March 26, 1898). Dr. Geo. P. Doolittle. After reporting a case of successful skin grafting for an ulcer, involving the entire leg from knee to ankle, the Doctor concludes:

1. With the use of the safety razor any physician can easily obtain large uniform grafts.

2. By the use of large grafts we have little or no contraction of tissue and the work of covering a large denuded surface is greatly hastened.

3. Where there is a granular surface without ulceration it is not necessary, in preparatory treatment, to freshen the granulations by scraping; neither is a protective necessary in dressing the surface, it only sweats and softens the grafts.

LIGATION OF THE AXILLARY ARTERY.—In the *Bulletin de l'Académie Royale de Médecine de Belgique*, Mons. Soupart has a valuable paper on the dangers of Ligation of the Axillary Artery between the points of origin of the subscapular and superior profunda arteries will cut off the entire blood supply of the extremity, and be followed inevitably by gangrene. The occasional success that has followed this procedure must be explained by an anomalous distribution of the blood-supply, possibly by the existence of two axillary trunks. Ligation of the axillary below the origin of the subscapular artery exposes the patient to the further risk of consecutive hemorrhage, as the small space existing between the origin of the branch arteries will not allow of the formation of a clot sufficiently large to resist the force of the blood-current. In every lesion of the axillary artery, it is a much less dangerous and more advantageous procedure to apply the ligature to the subclavian in the subclavicular fossa.

MYXEDEMA-LIKE CONDITIONS IN THE NEGRO.—H. J. Berkley (*American Journal of Insanity*, vol. liv. No. 3. p. 415), reports eight cases of Myxedema-like Conditions in the Negro. Myxedema in the negro is at present an unknown malady, whose existence is universally denied, but in the cases reported peculiar thickening of the skin was found, local in distribution, identical in all respects with that present in cases of sporadic cretinism in the Caucasian race, but less diffuse in character. In seven cases the thyroid gland was either not palpable, or below normal in size; in one case it was enlarged. The hair showed alteration in two cases, being coarse, thin and rough. The bones were abnormally broad in one case, the secretions of the skin were normal; even over the myxedematous areas there was little of the dryness and roughness usually characteristic of the disease. The features were broadened and rendered coarse in two cases, the abdomen pendulous in one case. The blood

was carefully examined, but no abnormalities were found in the shape or diameter of the red blood-corpuscles in any of the cases. The excretion of urea rose to about the normal in nearly all the cases under thyroid administration, while previously it had been below the normal. In four cases the administration of dry thyroid gland removed the jelly-like thickenings of the skin, proving fairly conclusively that the swellings were of the same general nature as myxedema; and all the cases improved mentally during the period of administration.—*Philadelphia Medical Journal*.

THE OPERATIVE TREATMENT OF HEMORRHOIDS.—By Gwilym G. Davis, Philadelphia. (*Therapeutic Gazette*).

The author describes a method of excision which he employs in preference to ligature or clamp and cautery in many cases, though he is partial to the ligature.

As to preparation for an operation for hemorrhoids, it is advised to administer a purge at least two successive days previously, and early in the morning of operation to give an enema of soapsuds, and another just before operating. Next stretch well the sphincters, which in itself will sometimes cure hemorrhoids. Through a speculum introduce a piece of gauze to prevent discharges from coming down, grasp the apex of the pile with a hemostat, raise it, and apply the long slender forceps. With a round sewing needle threaded with catgut, pass a stitch through and back again beneath the clamp and tie. Repeat this until the whole amount of tissue included in the clamp is ligated. It is essential that a round and not a cutting needle be used. If the skin has been included in the grasp of the clamp, an incision should be made through it with a scissors. The portion of the pile above the clamp is then cut away and the latter loosened. Any bleeding points should be ligated. The operation is completed by inserting with a curved needle and catgut as many sutures as may be desired to approximate any cut or bleeding surfaces. The sponge is removed from the rectum, an iodoform and opium suppository introduced, and a T bandage applied. To move the bowels on the fourth day with the least pain, a two-way catheter is introduced, washing away with warm saline or borax solution any accumulative feces. This procedure may be repeated for two days, when teaspoonful doses of epsom salts can be given until fluid movements occur.

THERAPEUTICS.

"HUSA" AS A REMEDY FOR THE OPIUM HABIT.—The February number of the *Texas Courier-Record of Medicine* opens with a remarkable account, by Dr. W. W. Winthrop, of Fort Worth, of his experience with an unclassified plant which he thinks may be indigenous to the everglades of Florida, one known by the name of "husa." He first observed its use in connection with that of the arrow-leaved violet, *viola hastata*, a plant that is found growing from Canada to Florida and westward to Arkansas.

Dr. Winthrop says that when he was living in Florida he often saw strange things done with snakes. He mentions a negro who was visiting the towns on the Indian River, giving exhibitions with two immense, terrible-looking rattlesnakes. He would irritate the snakes and allow them to bite him in any part of his person indicated by anybody who was willing to pay twenty-five cents to "see the show." Dr. Winthrop declares that the snakes had their fangs, which must have been "about three inches long." Furthermore, the negro would allow himself to be bitten by any snake that a person might catch and bring to him. Dr. Winthrop saw him bitten several times by moccasins that had just been caught. After each bite the negro would take a mouthful of some herbs which he carried in a little bag, maintaining that the herbs counteracted the venom. "He had none of the herbs for sale, the 'whole show' consisting of seeing the snakes bite." By the judicious use of money and whisky Dr. Winthrop succeeded in worming out of the negro this information: "Boss, de is viellies an' huser, an' I gets 'em from de Semmes in de dales."

"Semmes in de dales" evidently meant the Seminole Indians of the everglades, and to them the author betook himself for information. "But," he says, "though I used every means I could think of to get information about their remedies for snake-bite, I could elicit nothing from the Indians, men or women; neither the young men and boys, with whom I hunted day and night, could I induce to speak, though every one of them knew what I wanted. I was a stranger to them and that was enough. These Indians will not give a stranger information about anything; they must know who and what he is first." Just as he was about to give up disheartened, the author fell in with a Scotch physician who was botanizing in the everglades. This gentleman interpreted "viellies" as meaning "the spear-eared violet—*Viola sagitata*"—and "huser" as denoting an unclassified plant variously called "husa," "hoosa," "yousa" and "yusee" in Florida.

Dr. Winthrop states that *Viola sagitata* has long been known as possessing properties antidotal to snake poison. He gives the following account of "husa": "It is an unclassified plant of a dirty, whitish-green color, about two or three inches long. It has at its summit a ball-like white formation. Where the flower should be, this is hard, slightly lobulated, and is, to all appearances, like a small cauliflower. It grows in clumps in moist, shady places, particularly on the hammocks at the roots of the cabbage palms. It is of a low order of plants, above the mosses; it is, I believe, a cryptogam. It is possibly indigenous to the everglades, for I hunted for it in vain in many large hammocks in Florida. From Dr. McGregor I learned that it is a perfect antidote for all snake-bites, stings of insects, etc.; also an antidote for narcotic poisons. It is the most diffusible stimulant known, acting immediately."

Dr. Winthrop states that he has subjected the plant to various

tests, and has found it an infallible cure for the opium habit. He says: "It takes the place of opium or morphine. Supporting the patient fully, it is sedative but not narcotic. It produces slight elation, but no somnolent effect. To use the illustration of one physician who cured himself of the opium habit with it, a habit of twenty-three years' standing," one who was using forty grains of morphine sulphate daily, "It makes a man feel just as easy and comfortable as one feels after a satisfying meal.' As soon as I learned its properties I sent some of the husa plant to several doctors I knew who used morphine; they one and all pronounced it 'a perfect success.' I have never known of a failure when the patient wanted to be cured. In the hands of a careful physician, this remedy will be found efficient in the worst cases of drug addiction."

It is to be hoped that the botanists will give us some information about "husa," and that its medicinal virtues may be inquired into systematically. Editorial in *N. Y. Medical Journal*.

[We hope some of our Florida readers will investigate this.—EDITORS.]

TREATMENT OF SYPHILIS.—F. S. Lewis (*The Clinical Journal*, Dec. 15, 1897) says: The great point is to avoid giving mercury until you are sure that the patient is suffering from syphilis. This is worthy of your attention, especially having regard to lesions that may develop in after life. If a patient presents himself to you with a sore of uncertain nature, you may think that because it is indurated, and because he has some indurated glands in the groin, it is syphilis. You are perhaps not absolutely certain, nevertheless you wish to be on the safe side and begin a mercurial course. Nothing can be more harmful! The symptoms perhaps clear up; but still having committed yourself to a diagnosis of syphilis, you feel obliged to give him his full course, thus condemning one to whom it is worse than useless to a two years' mercurial course. He goes forth to the world hall-marked, and you know him as a syphilitic subject. In after life the man, thinking he has had syphilis, because you have treated him for such, develops an ugly looking sore on the tongue, and it is a question as between syphilis and epithelioma. You ask him whether he has ever had syphilis, and he replies in the affirmative. That probably makes you jump to the conclusion that the ulcer is syphilitic, and you put him upon iodide of potash, or perhaps some mercurial preparation. After losing much valuable time you find out that it is epithelioma after all, a fact which would have been apparent much sooner had there been no suspicion of syphilis through the original faulty diagnosis. On the other hand, you may say, 'If we do not give mercury as soon as we think that the sore is probably syphilitic, we are doing our patient harm; we are allowing the disease to make headway.' But it is not so, for you will find that the administration of mercury, even when constitutional symptoms have appeared, is just as efficacious as when given in the primary stage. By constitu-

tional symptoms, I mean the syphilitic roseola which usually appears on the abdomen, accompanied or not by the specific sore throat. There is no doubt one often does give mercury before the roseola appears, but then one is absolutely certain that the man has contracted syphilis. If a man comes with a sore on the prepuce or glans penis, which is both markedly and characteristically indurated, with possibly no abrasion of surface, or with a shallow depression not sharply punched out, with a healthy reddish looking surface, not that yellowish surface characteristic of a chancre; if he has also—and this is more important than all—enlarged and hard glands in the groin which show no sign of matting or running together, you may put that down with absolute certainty as syphilis, especially if the history bears this out. Under these circumstances the sooner you commence to give mercury the better.”

[We cannot quite agree with the Doctor's idea of so promptly commencing treatment.—EDITORS.]

SOME USES OF PILOCARPINE.—Dr. Edward F. Willoughby records (*Therapist*) some interesting cases illustrative of various uses of hypodermic injections of pilocarpine. In the first case, he injected a third of a grain of pilocarpine with a quarter of a grain of morphine in a very severe hot stage of intermittent fever, and very prompt relief of all symptoms followed the speedy diaphoresis. At the subsequent accesses, the injections were made promptly on the super-vention of the fever, and showed a marked effect “in hastening the transition from the hot dry to the cool moist stage, while the attacks became rapidly less severe.”

The second case was one of febrile insomnia with delirium in an overworked business man. Pilocarpine, a third of a grain, was injected. “The result was startling; in about ten minutes the skin was bedewed with perspiration, and he left him at 10 P. M., lying quiet, and covered with the bedclothes. Next morning he was perfectly calm and rational, his temperature normal; the patient had had seven or eight hours' refreshing sleep, and was still perspiring profusely.” He rapidly recovered.

Dr. Willoughby next records a case of obstinate lumbago treated ineffectually with all the usual remedies. Pilocarpine, a quarter of a grain subcutaneously, was followed by complete relief from pain next day, and the day following, after a further injection of a sixth of a grain, the patient was able to perform dumb-bell exercises.

Dr. Willoughby points out that in the event of toxic effects, a prompt physiological antidote is afforded by subcutaneous injections of atropine, and records two cases in which a fiftieth of a grain of that drug relieved within a few minutes all the toxic symptoms resulting from the administration of too large a dose of pilocarpine.

GUAIACOL APPLICATION IN THE TREATMENT OF GONORRHEAL EPIDIDYMITIS.—Jaroslav Lenz in the *Wiener Klinische Rundschau* of January 23 and 30, and February 6, 1898, reports the results of this

treatment in fifty cases. The application of a 10 per cent. ointment with vaselin is the best treatment for this condition. The application is analgesic and antipyretic, and is applicable in acute suppurative and traumatic cases. In subacute cases it is less valuable, and is of little use in promoting absorption after all acute symptoms have subsided. The method is free from danger and is always followed by a prompt lessening of the subjective symptoms.

THYROID FEEDING IN INSANITY.—Dr. Cross (*Edinburgh Medical Journal*, No. 11, 1897) relates twenty cases of insanity treated by thyroid extract with considerable improvement in some of the cases. Thyroid extract was administered in tabloid-form, 5 grn. each, from 6 to 12 tablets every day for about ten days. The cases under observation were:

1. Melancholia agitata—Four females and one male. The male only was greatly benefited.
2. Melancholia—Three females and four males. The females and all but one of the males were improved.
3. Senile dementia—One female, no improvement.
4. Chronic mania—Two females, no improvement.
5. Mental enfeeblement—One female and two males, no improvement.
6. Dementia—One female and one male, no improvement.

All cases gave more or less reaction to the thyroid, thus: Slight rise of temperature, slightly increased respiration and marked increase of pulse-rate, with weakness of the beat. The reaction became more pronounced at the end of the treatment, and was noticeable about a week after the discontinuance of the drug. The author advocates a trial of thyroid extract in all apparently hopeless cases of insanity.

MALNUTRITION IN INFANTS—The following emulsion is recommended as useful in cases of rickets or chronic malnutrition:

℞ Olive oil.....3iii
Glycerine.....3iiss
Yolks of two eggs.....

Make an emulsion and add one-half minim of creosote to each drachm.

OIL OF TURPENTINE IN THE TREATMENT OF CORNEAL OPACITIES.—Mr. G. A. Berry (*Edinburgh Medical Journal*, April, 1898) states that a good and not unduly stimulating effect may be got by the daily use of eye-drops made according to this formula:

℞ Oil of turpentine.....1 part.
Oil of almonds.....2 parts.
M.

HYPEROSMIC ACID IN TRIGEMINAL NEURALGIA.—Dr. Frank at a recent meeting of the *Berlin Verein für innere Medicin* showed two patients whom he relieved from trigeminal neuralgia by means of a new

method. Both suffered most excruciating pains, and the usual internal remedies, as arsenic, etc., as well as excision of the supra-orbital and infra-orbital nerves had no effect whatsoever. But the pains vanished permanently after one or two injections of a one to one and a half per cent. solution of hyperosmic acid into the painful areas. Frank, therefore, counsels the trial of this drug before turning the patient over to the surgeon.

THE ADMINISTRATION OF ANTIPYRINE AND SODIUM SALICYLATE.—Brice-moret (*Bulletin général de thérapeutique*, November 30, 1897) remarks that neither of these drugs should ever be given in capsules, on account of their tendency to give rise to gastric pain and vomiting. It is often well to prescribe antipyrine dissolved in a glass of Vichy water, which may be made sparkling by the addition of a slight amount of citric acid. Sodium salicylate should be administered in at least twenty times its weight of water. The author recommends this formula:

R: Sodium salicylate.....	90 grains.
Syrup of bitter orange peel.....	900 “
Curacao.....	450 “
Distilled water.....	900 “

M. This amount to be taken in twenty-four hours. Each dose should be mixed with half a glass of some effervescent water.

Castor oil can be made more fluid by warming, and more pleasant to the taste by adding sugar or an equal quantity of syrup of manna. —Teixeira in *Medical Record*.

CHRONIC URTICARIA TREATED WITH SODIUM NITRITE.—In the *Pac. Rec. of Med. and Surg.*, September, 1897, Dr. John P. Sawyer gives his experience in the treatment of chronic urticaria by the use of nitrite of sodium. The patient was a young lady who had been afflicted with urticaria during the summer season for many years. Many treatments had been tried, but nothing had brought relief. Not discovering any intrinsic cause for the condition, and regarding urticaria as an angio-neurosis, he prescribed one grain doses of sodium nitrite three times daily. The following day the patient experienced her first complete relief from the difficulty, and during the warm weather of the entire season she remained practically free from the disease. He offers no explanation for the relief afforded by the remedy than through its well-known effect upon the peripheral circulation.

Encouraged by success in this case he prescribed it for another one with the same general effect. The withdrawal of the remedy, in each case, was followed by a reappearance of the urticaria; on readministering the drug the disease subsided. Although this remedy was used in only two cases, still the evidence is so strongly in its favor that it would deserve trial in this persistent and intensely annoying disorder.

A COMPARISON OF SOME POTENT HYPNOTICS.—In the November number of the *Post-graduate* Dr. Reynold W. Wilcox says that paraldehyde is probably the most potent hypnotic, and after it come chloral-amide, pellotine and trional. As regards the rapidity with which they produce sleep, pellotine stands first, paraldehyde second, chloral-amide third, and trional fourth. With regard to the duration of the sleep resulting from moderate doses, it is longest with trional, and then come in the order given paraldehyde, pellotine and chloral-amide. There is but extremely slight danger of contracting a habit from the use of pellotine, a little more from that of chloral-amide, and very great danger from that of paraldehyde. For continuous administration, chloral-amide seems to be the safest, next comes pellotine, then paraldehyde and then trional.

THE TREATMENT OF CARBOLIC-ACID POISONING WITH VINEGAR.—The following case is related by Dr. A. Paget Steavenson in the *Indian Medical Record* for December 1st: The patient was a girl, eighteen years old, who said she was subject to "fits." On August 3, 1896, she was taken with one, and when the physician saw her she was in a semiconscious condition and frothing at the mouth. She had vomited slightly, and the vomited matter had a sour smell, but no carbolic-acid odor was observed. She regained consciousness, and a bromide draught was administered. She gradually became worse and another physician was called to see her. He diagnosticated the case as one of carbolic-acid poisoning, and, as he could not rouse her or get her to swallow anything, he ordered her to be taken to the hospital.

When she was admitted she was quite unconscious, cyanosed and nearly pulseless. The lips and the tongue were discolored, and the breath had a slight carbolic-acid odor. The author gave her a hypodermic injection of strychnine (one eightieth of a grain). He then passed a soft stomach-tube, washed the stomach out with equal parts of vinegar and water, and followed this with about six pints of warm water. He then gave her 5 ounces of milk and an ounce of brandy. She was then put into bed and kept warm. She gradually regained consciousness, and a few hours afterward she was able to speak. She was fed on Benger's food, milk, and soda water for the next three days. She did not vomit or complain of any pain. Carboluria was present for two days.

The author states that he was led to use vinegar in this case by Professor Carleton's suggestion in the *Practitioner* of August, 1896. He can not state definitely how much carbolic acid was taken. The long period of unconsciousness, the rapid recovery, and the absence of discomforting after-effects speak well, he thinks, for the vinegar, and he is of the opinion that it should be given a fair trial, especially as it is a remedy easily obtained.

PREVENTION OF VOMITING AFTER ANÆSTHESIA.—Capt. E. B. Frick, Assistant Surgeon, Presidio, San Francisco, Cal., claims that the

inhalation of the acetum aromaticum, N. F., is a reliable preventive of vomiting after anæsthesia. His opinion is founded on personal observation. He states that in many of the cases he was present as operator or assistant, while in the others the facts were gathered from the records of a private hospital in San Francisco. The aromatic vinegar was administered by inhalation from a saturated handkerchief as soon as the anæsthetic was discontinued, and was kept up for an hour or longer if called for by the occurrence or persistence of nausea or more active gastric disturbance.

CLIMATIC (OR MALARIAL) BUBOES.—Nagel's observation in 300 cases of so-called climatic bubo lead him to believe that this is purely a climatic affection and not, as has been suggested, a local manifestation of malaria. In but two of the 300 cases did these two affections appear simultaneously in the same individual; this is not in accordance with the results of other observers, who have frequently noticed the simultaneous development of malaria and climatic buboes.

[The so-called idiopathic, or climatic buboes, seen in our section, are considered by experienced practitioners to have a malarial origin. While we are not able to say why or how malaria can affect a lymphatic gland, that is no reason for setting aside the evidences of experienced men.—EDITORS.]

OBSTETRICS AND GYNÆCOLOGY.

THE USE OF HAND IN OBSTETRICS.—By Dr. Malcolm McLean (*Am. Gyn. and Obst. Jour.*, Dec., 1897). The author expresses the belief that the tendency on the part of certain writers on obstetrics to discourage the use of the hand for purposes of diagnosis and treatment during labor is hardly justifiable. The teaching that the obstetrician may not so much as make a digital examination of the parturient patient, without great danger of infection, says the author, tends to discourage the cultivation of that *tactus cruditus*, "which can be so highly developed in the human hand, and can never be safely supplanted by unfeeling steel."

For purposes of diagnosis, the sterilized hand may be carried far enough into the vagina to ascertain the condition of the passage, and the size, condition, position, etc., of the child. In doubtful cases the insertion of the fingers into the vagina is not sufficient, as tissues about the superior strait cannot be satisfactorily studied without the free introduction of the whole hand. The writer has found that a normal internal conjugate will just accommodate the hand, with all of the finger joints flexed, except the metacarpo-phalangeal joints, the bulb of the thumb being pressed firmly against the second joint of the index finger. The measurement taken in a direct line from the phalangeal joint of the thumb to the second joint of the little finger will be found to be just four inches; and the points named, the knuckles of the flexed thumb and the flexed little finger will be

found to be the points which come in contact with the sacral promontory, on the one hand, and the pubic symphysis on the other. If the pelvic diameter be reduced and admitting only the same points, i. e., the same impinging joints of the thumb and the little finger while the extremities are all extended, a measurement of $3\frac{1}{2}$ inches in diameter is the result. Should it be necessary to withdraw the thumb, and so bring the outside of the metacarpo-phalangeal joints of the index and little fingers in contact with the bony points of the pelvis, a diameter of three inches is obtained. The measurement gotten by contact—measurement through the middle joints of the three fingers, index, middle and ring—will be found reduced to $2\frac{1}{2}$ inches. The longer diameters of the superior strait, oblique and transverses, may be approximately estimated by abducting the thumb from the fingers in the first position. The presentation and position may be settled with a certainty which no other means can, by any probability, offer. And as irregularities in the position of the head constitute a large preponderance of the difficulties in cases of dystocia, it is here that the intelligent use of the hand will do the most valuable service. Having learned, beyond reasonable doubt, that the parturient canal is normal, the fingers carried up about the nape of the neck, and thence swept forward to the helices of the ears, the exact position of the occiput may be at once learned beyond doubt. The relative size of the head may be also learned, so that the proportions of the passage may receive their due valuation.

For the correction of faulty positions of the presenting part, or for the application of forceps, nothing is so safe or simple as the use of the fingers. To the objections that the frequent occasions for invading the canal with a meddlesome hand can be productive only of mischievous results, may be answered that "a well-trained hand is safer within the mother's body than any mechanical instrument; and what shall be said when the instrument is in an untrained hand?"

"But, it will be objected that the danger of introducing septic germs with the hand is such as to offset any probable good to come of such manipulations. To this we simply say that the operator who is unwilling or unable to sufficiently sterilize his hand for obstetric operations is unfit to be trusted at the other end of an instrument of steel—boil he it never so wisely!"

The danger of the introduced hand in coming in contact with the raw and bleeding surface of the uterus is thus answered by the author: "The hand will not come in contact with the raw and bleeding surface of the uterus, but with the water-proof and germ-proof membranes of the amniotic sac."

While the necessity for careful aseptic precautions is not underestimated, the writer would "Educate the hand as well as the head, that its delicacy of appreciation of every abnormality, its incomparable skill in manœuvering for the welfare of the sufferer, may not be driven from the field, because it is easier to boil an iron instrument than it is to take a conscientious bath."

ACUTE STRANGULATION OF PROLAPSED UTERUS AND VAGINA.—By Dr. J. M. Baldy (*Am. Jour. Obst. & Gyn.*, Feb., 1898). Mrs. C. D., age 70, menopause ten years ago. Prolapsus occurred ten years ago, but had become more troublesome during the past year. The symptoms were: leucorrhœa, frequent micturition and a bloody discharge of a few months' duration. The mass was reducible, but would immediately return, even while the patient was recumbent. Ten days later the mass had suddenly increased in size, and become irreducible, and the patient was suffering intensely. Temperature and pulse were considerably elevated, and the mass was double the size that it was ten days before, and was ulcerated to one-half its surface, and of a very dark appearance. The tumor was reduced with considerable difficulty, douches of hot water given. A week later the ulceration had healed, and an abdominal hysterectomy performed. The vagina, after being closed, was attached to the various stumps. Plastic operations were at the same time performed on the anterior and posterior vaginal walls. Recovery.

OVARIAN PREGNANCY.—H. J. Rowe, in *Med. Review*, describes a case of true ovarian pregnancy found at post-mortem examination. The right ovary was much enlarged, ruptured, and contained a well-developed fetus with cord attached to a rudimentary placenta in the ovary.

PUERPERAL INFECTION.—Of the treatment of puerperal infection Dr. E. E. Montgomery, in *Jour. Amer. Med. Ass'n*, says that when examination determines the absence of anything within the uterus which should afford a cause of high temperature, associated with profuse discharge, or possibly in the beginning an arrest of lochia, and particularly where there is redness or swelling of the vagina, exfoliation of the mucous membrane, presence of diphtheritic exudation upon or ulcerations of its surface, the condition should be recognized as sepsis and treated with antistreptococcic serum, local cleanliness, and constitutionally supporting measures. He reports several cases successfully treated in this manner.

Dr. R. R. Kime, in *Annals of Gyn. & Ped.*, strongly condemns the use of the curette and tampon, and of opium and coal-tar derivatives except as temporary measures in cases of extreme pain and very high temperature. He advises drainage with the softest, most pliable and largest sized tubing the cervix will admit, with plenty of openings in the uterine portion and three openings in the vaginal portion below a cross-bar by which it is retained. This should be removed and disinfected once or twice daily, and the uterus freely irrigated with boiled water or weak solutions of carbolic acid, boric acid, creolin, or with tincture of iodine if the uterus is flabby. In severe cases a strip of gauze may be used along the side of the drainage tube. The bowels should be kept open with salines.

Bumm, *Cent. Fur Gyn.* No. 45, observes 750 confinement cases, 22 per cent. of which he noticed a rise of temperature. In 16 per

cent. the fever was due to causes not related to labor; in 29 per cent. no cause could be found; in the remaining 55 per cent. the fever arose from infection of the genital tract, streptococci causing 13 per cent., gonococci 7 per cent., putrid infection 35 per cent., while in one case colon bacilli were found. The latter case ended fatally. Streptococcic infection was characterized by mildness of the attack.

PEDIATRICS.

TYPHOID IN YOUNG CHILDREN, SOME CLINICAL CHARACTERISTICS OF.—Rocaz, in *Wien. Med. Zrit.*, compares typhoid fever in children with that in adults and finds that the onset is often rapid and stormy; the intestinal symptoms are less marked, constipation being the rule, although enteritis is a frequent complication; vomiting is very common, anorexia extreme, and the tongue not dry as in adults. The temperature runs a less regular course. The respiratory tract is less involved than in adult cases, but broncho-pneumonia may appear early and is a severe complication. While the rose spots are the only pathognomonic sign of typhoid in children, they are often absent, and anomalous eruptions may occur; desquamation is not common, nor is epistaxis. The nervous complications are less frequent the younger the child, but the meningeal form of the disease is not uncommon. Osteo articular complications, as well as otitis media, are both frequent and dangerous. Stomatitis, noma, torticollis, and phlegmasia alba dolens have been observed. The duration is shorter and the convalescence more rapid than in adults. The prognosis is good in children over 5 years; under 3 years it is grave.

CRETINISM.—T. Telford-Smith, in *Lancet*, Oct. 6, states that while in rickets, however produced, there is perverted and delayed ossification resulting in softening and bending of the bones, under thyroid treatment in cretinism there is rapid resumption of growth in the skeleton leading to softening, which is most marked in the long bones and at the epiphyses. Cretins under thyroid treatment should therefore be watched for any commencing bending of the bones of the legs, and if such appears the child should, for a time, be hindered from walking or the legs be supported by light splints. As an additional means of assisting the rapid bone and other growth the diet should be generous and the child should get plenty of sunlight and open air.

INFANTILE MALARIAL FEVER WITH GRAVE ANEMIA.—John S. Billings, in *Medical News*, Oct. 16, 1897, reports a case which was observed in the Johns Hopkins Hospital. There were febrile paroxysms, and the child lost flesh and strength steadily from the first. An examination of the blood revealed the presence of two sets of malarial organisms of the tertian type, giving rise to the double tertian or quotidian variety of fever. Medication consisted of sulphate of quinine in one-quarter grain doses every four hours. Later

this was increased to one grain every four hours. After the eighth day the temperature remained normal, and the malarial organism was not found in the blood after this date. The quinine was discontinued on the twentieth day and Fowler's solution substituted. Under this treatment the red corpuscles increased and the leucocytes decreased steadily. The interesting point in the condition of the blood was the presence of nucleated red corpuscles in relatively large numbers. The presence of these and of polychromatophiles was an evidence of an increased activity on the part of the blood forming organs, with a resultant new formation. Such an indication of regeneration warranted a favorable prognosis.

INTERMITTENT FEVER IN CHILDREN.—An article by Herman B. Sheffield, in *N. Y. Med. Jour.*, Oct. 23, may be summarized as follows: 1. The fever in children is mostly of a quotidian type; the chill and sweating stage being often masked, it is not infrequently overlooked; the spleen is rarely enlarged if quinine is given early. 2. Genuine intermittent fever always presents the malaria plasmodium in the blood. 3. The existence of the varieties of the plasmodium described by some authors as peculiar to quotidian, quartan, tertian, etc., types of the fever, is still a subject of great controversy. 4. Infection of malaria is conveyed through the air as well as by water. 5. Malarial disease is endemic in most of our large cities of the North, especially in New York. 6. Intermittent fever yields promptly to large doses of quinine, a point of considerable value in the diagnosis. Persistence of the attacks may be attributed to the exhibition of the quinine in too small quantities for too brief a period, or to its administration in the form of the mercantile, heavily-coated pill, which, as a rule is insoluble and hardly ever enters into the circulation.

CHOLERA INFANTUM TREATED BY HYPODERMATIC INJECTIONS OF STERILIZED ANIMAL SERUM.—By Dr. O. Reinach (*N. Y. Lancet*, Jan., 1898).

Subcutaneous infusions of salt water, to which some clinicians are in the habit of resorting in grave cases of acute gastro-enteritis in suckling infants, may be advantageously supplanted by hypodermic injections of sterilized serum of cows, or better still, of horses. Among fifteen cases of cholera infantum treated in this manner, in Professor von Ranke's Clinique, there were only four deaths, and these occurred among infants in whom the gastro-intestinal affection was complicated by pneumonia.

These injections are made under the skin in the lateral region of the thorax, in doses of from 10 to 20 cubic centimeters. They were usually well borne, having only in one case determined a scarlatinal eruption, which persisted for two days. In three cases the temperature rose to 38.5° C.

The therapeutical effects manifested themselves on the following day by marked improvement in the general condition. The pulse became stronger, the cyanosis disappeared, and the limbs became warm. In some of the little patients this improvement was lasting,

but in others the effects had passed off toward the end of the next day, when another injection was administered with equally satisfactory results.

Dr. Reinach is of opinion that the favorable effect of the injections of serum in cholera infantum is due among other things, to its nutrient qualities. He has calculated that 20 cubic centimeters of blood serum contain about 1.5 gram of albumin; that is to say, they represent the equivalent from the point of view of nutrition, of 50 grams of cow's or 150 grams of woman's milk; a fact which must be of considerable importance in the case of an infant suffering from inanition as the result of the disease and the diet to which it is reduced in consequence.—*Post-Graduate*.

INFANTILE SCURVY, WITH COMMENTS ON INFANT-FOODS AND FEEDING.—By Dr. A. M. Jacobüs (*Med. News*, Jan., 1898.)

Scurvy in infants occurs most frequently between the ages of nine and eighteen months. It is a disease of malnutrition. The causes of scurvy are many—chiefly poor human or cow's milk, improperly modified good cow's milk, proprietary foods, condensed and sterilized milk, the three latter being relatively unsuitable in the order named, and, finally, a lack of cereals and raw foods, meat, fruit juices, etc., in variety and quantity suitable to the age of the infant.

The treatment, fortunately, is generally simple. First, we must absolutely prohibit the use of patent and proprietary foods, and next supply a food, in the absence of good mother's milk, properly modified. For a child aged eleven to fourteen months, the author would prescribe the following diet: Robinson's prepared barley, well cooked with water, and as thick as rich milk, and the best cow's milk, *unsterilized* or raw, in equal parts, with two teaspoonfuls of pure cream, two teaspoonfuls of lime water, and one-half to one teaspoonful of the best granulated sugar at each feeding. The child should be fed about once in two to three hours, depending upon the quantity it can take and retain at each feeding. After the second week increase the proportion of milk to two-thirds, and barley or oatmeal water and the rest of the mixture together making one-third. From the first give the juice of two medium-sized, choice, sweet oranges or one sweetened lemon each day in teaspoonful doses, with sugar, and as much water then and between feedings as desired. Also give two to four teaspoonfuls of beef juice twice a day, freshly prepared as follows: Take a small piece of "top sirloin," sear it quickly, first on one and then on the other side, and then broil it over a bed of live coals until the juice begins to run. Then score it with a hot knife, squeeze it with a hot lemon squeezer into a hot saucer, and add a pinch of salt and serve with a hot spoon as it cools down sufficiently to be fed to the baby without burning the mouth.

Improvement and cure rapidly follow and usually no medicines are required.

SOCIETY TRANSACTIONS.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting April 21, 1898.

EDWARD G. JANEWAY, M. D., PRESIDENT.

The meeting was in charge of the section on medicine.

THE STATE OF THE VASOMOTOR SYSTEM IN ACUTE LOBAR PNEUMONIA.—Dr. Richard Van Santvoord read a paper with this title. After referring to certain experiments made in Germany, which seemed to show that in certain infectious diseases, notably pneumonia, cardiac failure was mainly the result of vasomotor paralysis, he described some of his own recent observations at the Harlem Hospital. His sphygmographic tracings showed that in pneumonia the primary wave was generally sharply pointed, with but a faint indication of the tidal wave. This form of pulse curve was strongly pronounced in all cases in which the constitutional symptoms were very marked. His observations also showed that the mean arterial pressure was often low. When the general arterial tension was weakened, as a result of feebleness of the heart or of vasomotor paralysis, the blood tended to gravitate to the more dependent parts. The peculiar position assumed by those suffering much from dyspnoea was favorable to the development of cerebral anæmia, and this, in turn, probably explained certain nervous phenomena observed in pneumonia. It was stated in many books that the pulse of pneumonia was one of high tension, but this did not accord with his experience, although there was a bounding character to the pulse that might easily cause it to be mistaken for a high-tension pulse. If the tension approached or exceeded the normal, in pneumonia, it could be only by increased exertion on the part of the heart. The ability of the heart to respond to this demand might determine the outcome in a given case. The weak point in adapting the results of experiments on rabbits with the pneumococcus to the human subject suffering from pneumonia was that in rabbits the infection produced only septicæmia, without pulmonary lesions; nevertheless he thought the animal experiments shed light not only on the cases in which toxæmia was prominent, but on those in which the pulmonary element was an important factor. Post-mortem examinations sometimes showed oedema of the non-hepatized lung. In this connection it was instructive to recall the experiments made years ago by Welch on the artificial production of pulmonary oedema. He demonstrated that pulmonary oedema was the result of relative insufficiency of the left heart, the right heart continuing to pump the blood into this organ. In pneumonia, owing to the increased strain thrown on the right heart, the conditions were reversed, and the result was congestion of the abdominal organs, especially of the liver. Dr. Van Santvoord

said that in a few cases he had endeavored to secure contraction of the vessels by the administration of barium chloride, in doses of four grains, every four hours, but the result had been practically negative. Some good effects were observed in the few cases in which ergot had been given in half-drachm doses, every three hours. There would seem to be an indication for the use of digitalis in these cases of vasomotor paralysis, as this remedy slowed the heart and contracted the peripheral vessels, but opinion had long been divided on this point. In cases exhibiting embarrassment of the right heart, Dr. A. H. Smith had earnestly advocated the administration of nitroglycerin. It seemed to him very much like "carrying coals to Newcastle" to administer nitroglycerin in many of these cases, although it was possible that a still further dilatation of the vessels might sometimes give relief.

DIFFERENT TYPES OF PNEUMONIA.—Dr. Andrew H. Smith said that at the outset in such a discussion as this it was well to remember that there were great differences in different cases of pneumonia, and that reasoning which would apply to one case would not apply to another. We used to hear much of the distinction between sthenic and asthenic pneumonia, and he thought this distinction was well taken. For example, in a given case, the pulse might be firm and strong—such a one as our forefathers thought demanded immediate venesection—and the nervous symptoms few. There might be quite a high temperature, and also a marked increase in the leucocytosis. In another case—one of the asthenic type—delirium occurred early; there might be a prolonged and severe initial chill; the pulse was small, quick and feeble; everything indicated a profound intoxication of the nervous system. The leucocytosis might not be greater than in health. In the first case the high leucocytosis seemed to indicate a vigorous struggle on the part of the system against the inroads of the disease, and in the latter the system seemed to surrender almost at discretion. These asthenic patients were really suffering from septicæmia, and when death occurred it was associated with symptoms of septicæmia. It was evident that reasoning which would apply to the first class would hardly be applicable to the second. This same difference between sthenic and asthenic cases was observed very frequently in the experimental pathology of pneumonia. Welch, for example, has shown that a given specimen of the diplococcus would produce a toxin which would very slightly affect the nervous system, while another specimen would produce a toxin which would immediately overwhelm the nervous system. It was for this reason that the theory had been advanced that there were two different toxins in pneumonia, varying greatly in their power to affect the nervous system. But there was still another condition, dependent, as a rule, upon some previous fault of the circulatory apparatus—either age, alcoholism, or something of that kind. In this type there was great respiratory distress as a result of the mechanical condition.

WHEN NITROGLYCERIN IS INDICATED.—In some cases the outcome seemed to depend entirely upon the ability of the right heart to move the mass of blood through the lung. These cases were marked by dyspnoea, cyanosis, and a generally congested condition of the vascular system. The right side of the heart would be found, on percussion, to be enlarged, and there would be decided accentuation of the pulmonary second sound. In this class of cases he thought nitroglycerin was of value. Whatever the theoretical views on the subject, he felt satisfied that any one who would give a fair trial to nitroglycerin or to nitrite of sodium in those cases in which there were cyanosis and other indications of overfilling of the venous system would confirm what he had said about the value of these remedies. It would not do, however, to label a case "pneumonia," and then give certain remedies which have been recommended in a general way for that disease.

THE USE OF DIGITALIS.—He would hesitate a great deal about giving digitalis. Medical practitioners, the world over, did not freely use this remedy in pneumonia, and this too, notwithstanding the fact that many years had elapsed since Petresco first published his wonderful statistics. It should be remembered also that his observations were made upon exceptionally healthy soldiers seen in a military hospital, and at an exceptionally early stage of the disease. These men were all young and were in excellent physical condition. In times of peace it would be found that everywhere the mortality from pneumonia in military practice was far below that in civil practice.

THE MODE OF PREPARING THE DIGITALIS IMPORTANT.—Again, the infusion of digitalis employed by Petresco contained digitanin and digitalinin, but no digitalin or digitoxin. The digitoxin was the chief poisonous principle of the digitalis; the digitalin, on the other hand, was what was commonly used subcutaneously. Dr. Smith said he had found that by ordering the U. S. P. preparation without the alcohol one could obtain effects which were quite different from those observed when the usual formula was followed, because the alcohol in the latter acted as a solvent for the objectionable principles. With increasing experience he felt more and more confidence in strychnine as a cardiac stimulant.

OUR FOREFATHERS HAD STRONGER HEARTS.—Dr. Leonard Weber said that he had often observed in recent years that his results had been worse in the treatment of pneumonia than in former times, and this had led him to ask himself if the individual or the type of the disease had changed. There was nothing to lead us to infer that the pathology of the disease had changed, and hence he was disposed to believe that the individual had changed more or less. This change in the individual, in his opinion, consisted in a greater weakness of the heart in the average person.

THE SYMPTOMATIC TREATMENT.—As regarded the treatment, he must say that there was no real treatment for pneumonia, except a symp-

tomatic one. From 1858 to 1862 it had been the fashion to give digitalis as a routine measure in pneumonia. He would not like even now to treat many cases of acute lobar pneumonia without digitalis, although he did not use it in all. He used an infusion of half a drachm of the leaves to seven ounces of water, and gave of this one tablespoonful every two hours. This he did at the beginning of the disease, when the pulse indicated that the heart would soon show signs of weakness. He also relied upon the wet pack to the chest. This accomplished two things, *i. e.*, (1) stimulation of the pneumogastric centre and improvement of the action of the heart, and (2) a tonic effect on the nervous system. Sometimes it was necessary to give this quantity of digitalis—seven ounces—two or three times. As supporting measures in pneumonia he favored the free hypodermic use of strychnine and camphorated oil. So far as this city was concerned, he felt positive that the mortality from pneumonia in people from forty to sixty years of age was now greater than it was many years ago.

Dr. Van Santvoord said that he wished to emphasize the fact that while nitroglycerin was of service in just the class of cases described by Dr. Smith, it was useless, and indeed decidedly harmful in other cases. The object of his paper had been to direct attention to an additional factor of the disease, which had not received its share of attention. Camphor and strychnine had been recommended by one of the speakers. The former was a pure cardiac stimulant; the latter not only exerted a strengthening action on the heart, but acted powerfully on the vasomotor system.

INJURIES AFTER EXPOSURE TO THE X-RAY.—Dr. William Vissman read a paper on this subject, describing at length a case which had been under the care of Dr. James P. Tuttle. The patient, who had been injured in the civil war, had been subjected to a prolonged examination by the X-rays on September 14th, the vacuum tube being placed, it was said, about four inches from the surface of the limb. Nothing unusual was observed until October 14th, when the skin became reddened. In a few days the skin broke down, and there was severe burning over the affected area. The lesion, it should be noted, appeared on the side of the knee-joint opposite to that which had been exposed to the Crookes tube.

RESULTS OF MICROSCOPICAL EXAMINATIONS.—Sections of tissue from the edges of the ulcer and from the adjacent tissues, as well as from the centre of the defect, were examined. It was found that the epithelium and the papillæ had disappeared, and that there was a marked infiltration of round cells extending down even to the muscle. All the coats of the walls of the blood-vessels had taken on this process of connective-tissue growth, so that in many places the lumen of the vessels was contracted or nearly obliterated. The round-cell infiltration was marked around the outside of the fat tissue, but completely disappeared in the centre of this tissue, thus constituting a marked exception to what was found in the other tissues.

The round-cell infiltration was most marked around the blood-vessels and lymph spaces. There was a line of demarcation such as would be expected in ordinary gangrene. The microscope showed no foreign particles, either in the fresh or in the hardened tissue. Dr. Vissman said that he had been able to find reports of only two other microscopical examinations in cases of this kind. Several French observers had endeavored experimentally to produce X-ray injuries in rabbits, but the most that they could accomplish was the production of alopecia.

VARIOUS THEORIES.—Dr. Vissman said that various theories had been advanced to explain the lesion. One theory was that it was the result of malnutrition of the cells, caused by the absorption of the X-rays, which disintegrated the organic fluids, and the acids or alkalis thus produced disorganized the tissues. Others believed that the changes produced in the skin and subcutaneous tissue were of tropho-neurotic origin. Tesla claimed that a certain irritation of the skin was produced through the electro-static influence. He had found that this influence could be entirely avoided by using a screen of aluminium or aluminium wire gauze, but only when this screen was connected with the ground. The irritation of the skin, he thought, was the result of the abundant production of ozone. This generation of ozone ceased abruptly at a definite distance from the electric terminal, and the same was true regarding the production of this irritation. Dr. Vissman said that in a recent interview he had understood Mr. Tesla to express the view that particles torn from the electrodes played a not unimportant part in the production of X-ray injuries. It should be recalled here that the fat tissue escaped injury. This was apparently due to the fat being a non-conductor of electricity. The direct effect of the electricity on the blood-vessels might be responsible for some of the earlier phenomena observed, such as erythema.

X-RAY INJURIES VERY DIFFERENT FROM BURNS.—Dr. E. B. Bronson said that the paper just presented was an interesting contribution to this very obscure subject, yet he thought the mystery was still far from being solved. The term "burn" was a misnomer as applied to the injuries produced by the X-rays. There was no immediate injury apparent on the surface; it was usually after an interval of a week that the first manifestation was noted. This was ordinarily an erythema, although in certain cases, possibly dependent upon idiosyncrasy, the inflammation was deeper and might even be gangrenous. In the case reported by Gilchrist, that of one of Edison's employees, the nerves and even the bones had been affected. He had seen this patient himself, and had observed a very distinct enlargement and induration of the nerves. It was evident that the active agency in producing these injuries exerted more than a superficial influence; it probably affected the deeper parts first. He was inclined to think that the active agent was not the ozone, or the electrical current, or the bombardment of the tissues by particles of

platinum, as suggested by Tesla and others. All these theories had been tested, and with negative results. If the injury was due to bombardment with particles of platinum, why should not similar results be observed in metallic cataphoresis?

EVIDENCE THAT THE NERVES ARE PRIMARILY INVOLVED.—He believed that the first injury took place in the deeper tissues, and probably as a result of the action of the Roentgen rays themselves. It seemed to him not unlikely that the nerves were first involved. This view found some support in the fact that the pain was usually excruciating. He had had under observation for a number of months a young woman who had been skiagraphed because of disease of the hip-joint. This had been followed by an ulceration which had lasted for about three months. It then appeared to be healing, but the pain became doubly severe and none of the applications ordinarily suitable for burns gave any relief—indeed, they aggravated her suffering. It was a full year before the part cicatrized. The appearance of the part before healing had been that of a moist ulcer coated with a soft yellowish covering, resembling wet pasteboard. Scattered over the centre of this area were a number of red and exceedingly sensitive papillæ. In this case the entire abdomen now showed numerous dilated blood-vessels, apparently indicating a grave involvement of the vascular system.

THE ALOPECIA IS TEMPORARY.—In the effect produced on the hair we probably had another example of the involvement of the blood-vessels. It was a curious fact that the alopecia did not seem to be associated with any distinct hyperæmia. In most of the reported cases the growth of hair had returned.

LUPUS TREATED BY THE X-RAYS.—A German investigator had tried the effect of prolonged exposure of lupus to the Roentgen rays. The patient was kept under the rays for two hours at a time, for eighteen consecutive days. It caused the lupus tubercles that had been before imperceptible to become visible, and produced an effect similar to cauterization. After five months cicatrization occurred, and the skin no longer presented any evidence of lupus.

EVIDENCE OF PRIMARY INVOLVEMENT OF THE BLOOD VESSELS.—Dr. James P. Tuttle said that he was disposed to believe that the affection was one primarily of the blood-vessels and not of the nerves. The pain was due to the involvement of the nerve-endings in the growth of dense connective tissue. When excision was made wide of the affected area and the part was removed, the pain ceased apparently showing that it was the result of the inclusion of the terminal filaments of the nerves in the connective tissue. Although ichthyol usually gave relief in common burns, he had found that it aggravated the pain of an X-ray injury. Cold water ordinarily proved soothing to burns, but in the case reported by Dr. Vissman this evening, as soon as the temperature of the carbolic-acid solution fell below 85° F. the pain increased. He had known this patient for ten years, and could positively state that, although there was

disease of the knee-joint, there had been no tendency to inflammation of the skin over the joint. Even the scar tissue left after a former operation, although close to the affected area, remained unchanged. The injury in this case certainly extended into the capsule of the knee-joint, and possibly even into the bone.

TREATMENT.—One surgeon in this city claimed to have cured twenty-five or thirty cases of X-ray injury by cutting down clear through the affected part, and then dressing with carbolic acid until granulation set in. After this balsam of Peru was applied, and healing took place by granulation. It seemed reasonable to believe that one could, in certain situations, cut down below the region in which were the affected blood-vessels, and so secure comparatively rapid healing. He knew personally of four cases in which skin grafting had been used, but with only temporary benefit. He had ascertained in a number of cases that even after healing had occurred the severe neuralgic pain had persisted.

NEED FOR GREATER CAUTION IN USING THESE RAYS.—Dr. Tuttle said that, while in his reported case it had been deemed justifiable to amputate the limb, this would never have been necessary had the Roentgen rays not been used. This showed the need for the exercise of greater caution in the use of this valuable but powerful adjunct, and the necessity for having these examinations conducted only by thoroughly competent persons.

Dr. Vissman closed the discussion. He said that Mr. Tesla had found that these X-ray injuries could be avoided if an aluminum screen was used, provided it was "grounded," but that if it was not grounded the screen did not seem to be effective. Again, Mr. Tesla asserted that if the limb was placed between the metal plate and the Crookes tube the injury on the limb would be on the side on which was the metal plate. The distribution of metal by an electric current through tissue could be followed under the microscope by a suitable arrangement of apparatus, and in this way it had been found that the metal was not forced into the cells. It was possible, however, to decompose the sodium chloride in the tissues, thus giving rise to the formation of irritants. The speaker expressed the belief that the pain experienced in these cases could be explained by the same theory as had been advanced to account for the severe colicky pain felt when there was spasm of the muscular coat of the intestine.

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No. 6.

ORIGINAL COMMUNICATIONS.

CHARRED STRAW IN SURGERY.

NOTE BY THE EDITOR.—[In spite of the length of time that has elapsed since its introduction by Dr. Z. Kikuzi, of the Imperial Japanese Army, and notwithstanding some contentions for priority of discovery that have been made, chiefly in the columns of the *Medical Record*, this real advance in military surgery still appears but little known to the profession in America. For that reason Dr. Kikuzi's paper will be published in full below. The original, of which the following is an exact translation, was presented in the form of a reprint by its author to a surgeon in the United States Navy. He was then in the field with the first division of the Imperial Japanese Army, his exact military designation being given upon his card—"Generalarzt II Klasse; Chefarzt der I Division." He should not be confused with his brother, Dr. Yasutada Kikuzi, who was very prominent in the excellent military hospital work done at Hiroshima, Japan, in the course of the Chinese-Japanese war. It should be added that the paper appeared in *Beitrag zur klinische Chirurgie*. The navy surgeon referred to above saw hollow straw from various cereals used by the Japanese surgeons in Dr. Kikuzi's division in Manchuria in March, 1895. This is noted because of its bearing upon speculations based upon alleged peculiarities of rice straw.]

I. PROPERTIES OF CHARRED STRAW.—"Charred straw" is the black residue left after burning rice straw. I have had Chief Apothecary Hirajima, I. J. Army, and Apothecary Mazui, I. J. Army, make a chemical analysis of this substance. They prepared qualitative and quantitative analyses, for which I take this opportunity of extending my thanks to them. This is their report:

1. CHEMICAL ANALYSIS OF CHARRED STRAW.—Chemical analysis of that used in the hospitals of Tokyo for surgical dressings and derived from the rice crop of 1890, shows an almost black mass composed of bits of charred straw that, for the most part, retain something of their

shape, portions dark brown in color (insufficiently burned particles), sand that was either attached to the straw before it was burned or intermixed with it in the process, and gray pulverent ashes. It consisted of—

Water..... 0.871 parts
 Ashes..... 69.071 “
 Unburned straw..... 24.058 “

Lixivation yielded about 1.0056 parts of a mixture composed of calcium, sodium and aluminium oxides, magnesia, iron, chlorine, sulphurous, phosphoric and carbonic acids, silicates, and organic matter. The solid matter in 100 grammes of this lye weighs 0.79 grammes.

TABLE No. 1.

	Water.	Sodium Silicate.	Sodium Chloride.	Calcium Carbonate.	Sodium Phosphate.	Sodium Carbonate.	Calcium Sulphate.	Magnesia, Iron and Aluminium Acids.	Organic Matter. Total.
100 grammes lye contains.....	99.205	.423	.089	.069	.061	.059	.009	.076	100
100 grammes solid matter contains.....		54.207	11.195	8.679	7.673	7.421	1.132	8.561	100

There is 4.14 grammes of alkali in 100 grammes of straw ashes; this, however, represents only the amount of sodium lye.

2. ABSORBENT PROPERTIES.—To test its absorbent properties I had to adopt some well-known substance as a standard. In this case I chose oil-free cotton and gauze, that are now-a-days the materials ordinarily used in surgical dressings. The result of the examination was as follows :

TABLE No. 2.

Weight of materials employed.	Weight of maximum liquid absorbed.	Weight of liquid present in material after squeezing.	Am't of evaporation from soaked material after 1 to 6 days, respectively.		
I—Oil free cotton, 5 grammes.	80.0	43.0	40 19.0	80 26.0	130 38.0
II—Oil-free gauze, 8 grammes.	66.0	44.0	4.0 25.0	10.0 33.0	17.0 44.0
III—Charred straw, 15 grammes.	65.0	58.0	5.0 24.0	10.0 30.0	16.0 43.0

The weight of the materials employed are different; because it was desired to ascertain the absorbent properties of equal bulks of the substances examined. The amount of liquid that each had absorbed was ascertained by weighing the masses when they had taken up as much liquid as possible after having been dipped into water, removed between two fingers, and allowed to drain thoroughly. This weight proved the same as that obtained by soaking the material held between two iron plates whose lower edges rested in water and which

held the material inclined at a slope of about 45 degrees for a space of five minutes. To obtain the weight of the liquid evaporated, I weighed the materials every day at the same hour. On the seventh day this was practically nothing.

As is shown in Table No. 2, the absorbent capacity of charred straw is greater than that of the same volume of gauze and of cotton, and it is not inferior to either in regard to evaporation; hence in these particulars it compares very favorably with both of them. Mr. Hira-jima has had the kindness to make this examination for me of the absorbent capacity of charred straw as compared with that of absorbent (oil-free) cotton, which also shows the superiority of the former:

Two glass tubes of the same length, similar and even in bore, were filled to above the same degree of impaction, one with charred straw and the other with absorbent cotton, and placed on end in a beaker containing water. In a quarter of an hour the cotton has been wetted for 1-6 of its extent in the tube and contained 10 per cent. by weight of water, while the straw was wet for a greater distance and had absorbed 21 per cent. of water.

3. ELASTICITY AND SOFTNESS.—In consequence of its lightness, softness and porosity it is very elastic. For this reason it is well adapted, when made into suitable compresses, for placing upon wounds, and it will give soft equable pressure.

4. ASEPTIC PROPERTIES.—As heat is the best agent for disinfection, and as this is the first and only treatment required by charred straw, which can be quite properly applied at very short notice and the product used for its desired purposes immediately afterwards, it is my belief that there is no aseptic dressing more readily prepared than this.

5. AVAILABILITY.—Straw can be obtained almost everywhere at any season. Stubble and the dried branches from many of the plants of the fields are suitable for its preparation as well as rice straw. Even straw from stables may be used, although somewhat soiled, as the process of charring will destroy all possibility of infection from it.

6. COST.—With regard to price, I may state that by charring 4,000 grammes of straw one gets about 1,200 grammes of charred straw, about one-half the cost of which, even in the expensive city of Tokyo, does not amount to more than 50 centimes (10 cents U. S. currency). The weight of charred straw necessary for an average dressing is between 50 and 100 grammes, which makes the average price of a dressing 5 centimes (1 cent).

There is no dressing material cheaper than this. As proof I can announce the fact that, after the earthquake at Mino, province of Owari, Japan, there were used for about 1,600 wounded 8,120 dressings of charred straw of a total weight of 2,276 kilogrammes, at a total cost of 7 francs (\$1.40).

2. PREPARATION OF CHARRED STRAW.—Although usually the remains of burned rice straw are called "straw ashes," they are not

purely pulverent ashes, but a mixture of charcoal and straw ashes, and they are therefore called *charred straw*. In order to obtain this material—charcoal—in representative quantities the burning has to be done with a small supply of air. The best method is to take a large iron kettle, fill it with straw, ignite it and, after the straw has ceased to blaze, cover it over closely for a short while. Afterwards the cooled charred straw is removed. A suitable kettle may be obtained almost everywhere. If it is necessary, however, to make it in large quantities, this can be done on the threshing-floor of a barn, or in a stable, or on the floor of a room with the doors closed so that almost no air is admitted. In these cases one must not forget to stir well the remains of the straw immediately after it has ceased to blaze, in order that there may be no unburned ends to give trouble subsequently in the dressings.

As it rapidly absorbs moisture from the air, it is better not to prepare it until shortly before it will be required for use.

At Mino, Owari, after the catastrophe, a man was kept busy preparing charred straw in a room adjacent to the hospital.

III. MODE OF USE.—Originally it was used packed in linen bags, and I now think it best to describe the old method first and to give the new one afterwards.

Upon a disinfected and dried wound place a piece of gauze and pour upon it a sufficient quantity of charred straw; after spreading it out uniformly, turn the edges and corners of the gauze over and back towards the centre of the pile of straw, forming in this way a sort of cushion upon the wound. More than one thickness of gauze may be desirable from the tendency of the ashes to sift through. By this method it sometimes happened that ashes, etc., came into contact with the wound, which, although harmless, is unsurgical. Besides this method requires much time. Lately I have used a simpler one.

Make bags of different sizes out of disinfected gauze. These are to be filled with charred straw and sewn up; then they are ready for use. In this way we save time and material, as gauze placed in contact with the bags may be used again or even washed; at the same time fewer of the ashes sift through the gauze. The size, form and thickness of these pads is, of course, dependent upon the shape and size of the wounds presented. They should project over the edges of them from three to four centimetres. I have used three sizes—large, medium and small.

The large bags are 20 centimetres by 13.3 centimetres; the medium 13.3 centimetres by 10 centimetres, and the small ones 10 centimetres by 5 centimetres. All of them are about 3 centimetres thick.

It is best to use them, as I have already indicated, when they have been freshly prepared; however, a reasonable supply may be preserved for weeks at a time in an air-tight receptacle, preferably a metal box. In case operations have to be done away from a hospi-

tal, we need only to carry along the ready-made bags and have the charred straw prepared on the spot. In time of war we should only need the disinfected bags and the necessary measures for a supply of straw.

I shall conclude by comparing the properties of charred straw with those of gauze:

1. The absorbent capacity of charred straw has been proved to be much greater than that of gauze.

2. Charred straw is ready for use everywhere, not alone in the Orient, and it is easily prepared in large quantities, which is not the case with gauze.

3. With regard to cost, charred straw has the advantage over gauze. An average dressing of the last-named material costs about 1.6 francs (about 31 cents), whilst a dressing of the same size of charred straw costs only about 0.1 centime (less than 0.02 of a cent).

4. Charred straw is ready for use immediately after having been burned; that is, it is easily disinfected, whilst the preparation of gauze and its disinfection is a complicated process.

5. There is no need of transporting charred straw, as it can be obtained everywhere.

6. In regard to its softness, elasticity and general usefulness, it differs very little from gauze.

From a military point of view, it is of importance that the large storage-room required ordinarily for surgical dressings may be dispensed with, since, in time of war, the preparation of this material will be carried on wherever it may be required. This obviation of the necessity of storage in time of peace, of transportation in time of war, and its cheapness, are three very important points in which charred straw is superior to gauze.

As a dressing for poor patients it can be fully commended for its cheapness.

OBSTRUCTION OF THE PULMONARY CIRCULATION IN PULMONARY TUBERCULOSIS AND SOME SUG- GESTIONS FOR ITS TREATMENT.

By KARL VON RUOK, B. S., M. D.,
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A small, rapid pulse is a common symptom in the course of pulmonary tuberculosis, and, especially in young subjects, it frequently precedes the advent of fever and cough.

Its early occurrence, either alone or associated with more or less anæmia, even at a period which has been designated "the pre-tubercular stage," led to the theory, that the heart and vascular system itself were primarily at fault, and that its imperfect development gave rise to those symptoms, and was a strong, predisposing factor to the development of phthisis.

At that time and since I have been much interested in determining the correctness of this theory, and although I have been frequently able to confirm the abnormal phenomena as to the rapid heart action and small volume in the radial artery, I have but rarely been able to satisfy myself that the heart in such subjects was smaller than in the healthy subjects of equal size and weight, a theory which was maintained by the late Dr. Brehmer.

The small and rapid pulse, though often present in the early stages is more and more frequently observed as the disease progresses, until in the last stages, it is the rule.

In the earlier periods the condition becomes only apparent toward the close of the day, when the patient has been up and about, taking more or less exercise; in others we notice this behavior of the circulation on even slight exertion, and I have often observed a good pulse of 72 or 84 to be greatly increased in frequency, and to become small, from the simple act of rising and dressing.

In many such cases the general appearance of the patient was quite satisfactory, the nutrition was still good, and the color of the skin and mucous membrane gave no indication of anæmia. In more recent years, I have made blood counts, and estimated the hæmoglobin per cent. and usually found normal values.

In some instances anæmia was present, and in a portion of these it could be distinctly shown, that the anæmia occurred at a later period, the abnormal pulse having preceded for various periods of time.

As already stated the size and action of the heart itself have been carefully observed, in all my cases, and though I found, as a rule, a normal heart, I found with great uniformity a sharp accentuation of the second pulmonary sound, which was absent during prolonged rest, as before rising in the morning, and which became the more marked, the more the pulse was allowed to be increased by exercise, and toward the close of the day.

The increased tension in the pulmonary system indicated by the sharp closure of the pulmonary valves in the absence of anything to account for it in the left side of the heart, necessarily points to obstruction in the lungs and the readiness for observing the effect depends upon the degree of obstruction attained, and upon the relative strength of the heart in the individual case.

In some cases the tubercular disease may involve large areas of lung tissue before the heart strain becomes a factor, in others it is evident, even before well marked physical symptoms can be elicited by percussion and auscultation.

This probably depends upon the degree that the arterioles and capillaries are themselves involved in the tubercular disease, which from pathological studies we find to vary very much indeed, not only in the early periods of tubercular eruption, but also in the advanced lesions; later the obstruction is produced or augmented by a variety of causes, such as inflammatory changes and contractions in the in-

volved lung, by pleural adhesions, and by the actual destruction of lung tissues, while at the same time the power of the heart muscle is diminished with the decline of the general nutrition.

If this interpretation is correct, our position in view of these symptoms is different, than it would be, if a small heart was the primary cause, for the obvious reason, that while powerless against the latter, much may be done in the general management and treatment of such patients to overcome the condition itself, or at least to modify it, so that we may maintain a good circulation, as an aid to the patient's recovery.

Lighter forms of pulmonary obstruction may easily be overlooked, especially when patients call at their physician's office, which is usually in the forenoon, and if the examination is made after some period of rest in the waiting-room.

It may then occur, that the quality and frequency of the pulse are satisfactory, and that no accentuation of the second pulmonary sound is noted; it is therefore well to occasionally examine the condition of the circulation at a later part of the day, and immediately after taking exercise.

My experience has absolutely satisfied me that the maintainance of a good circulation at all times is of the greatest importance to an ultimate favorable result, and in practice I consider the observation of the circulation as of even greater importance than that of the temperature.

Without such observation, we have absolutely no guide in the regulation of the patient's rest and exercise which may lead to errors in both directions.

A patient taking prolonged exercise, mental or physical, with a small pulse of 108 to 140, does not only induce congestion in the lung, which it may take several days of rest to overcome, but he causes an amount of heart strain, by which its power is still further reduced, or permanently injured.

Uninformed, and without caution and control, he is liable to continue in such a course, thereby causing congestion and stasis in the lungs which in turn favor caseation, and the breaking down of tubercle, the invasion of badly nourished lung tissue, and of caseous tubercle by other pathogenic micro-organisms; conditions under which fever, cough and expectoration and general failure in nutrition are maintained or increased, and destructive changes are invited.

Few, if any, patients err in the opposite direction by maintaining the recumbent position at all times, unless compelled to do so by the active symptoms described.

Absolute and continuous rest is only then of value, when acute symptoms are present, but such a course fails to comply with one of the important indications in the management and treatment of such cases, which resolves itself in the removal of the cause, and in inducing a compensatory hypertrophy of the right ventricle.

As to the former, it means removal in early stage cases of the

tubercular eruption within the coats of the arterioles, and in the walls of capillaries, and in their immediate vicinity, and in more advanced cases the removal of inflammatory products, and of such pathological changes and degenerations which may be present, or both.

The removal of more recent eruptions of tubercle I believe can be accomplished through the use of culture products from the specific germs, and however some colleagues may choose to differ with me upon theoretical grounds, or because of insufficient experience with such remedies as those, upon which I have learned to rely, my own experience with hundreds upon hundreds of cases closely observed and treated by me, leave me no room for doubt.

The success attending their use in just such cases as those to which this paper refers in the restoration of a normal circulation, when prior to their use the symptoms of pulmonary obstruction were well marked, can only be explained by assuming the removal of the cause, and the actual observation of the disappearance of tubercle in parts accessible to inspection confirms, that the presence of tubercle in the walls of arterioles and capillaries, and in their vicinity may be the cause of the obstructed circulation in the pulmonary system.

I append clinical notes from my records of several typical cases, which may be of interest in showing the symptoms and effect of treatment at a period of the pulmonary disease when good results may be looked for:

CASE 1.—Young man, age 20, of phthisical family on both father and mother's side, an older brother and younger sister have also died of phthisis.

Present illness began three months ago with an attack of grippe, from which he made an imperfect recovery. Though better for a time, he grew worse again, with increasing cough, fever, chilly sensations and night sweats which lasted several weeks, during which he had to keep his bed; with increasing expectoration, his symptoms again subsided about two weeks before he came under my care; tubercle bacilli had been found in the last of several specimens of sputus examined prior to his admission to the Winyah Sanitarium.

Examination showed involvement of the right upper lobe, a small cavity above middle of cavicle, medium-sized rales above and below to second rib, and posterior to the spine of scapula; in left upper lobe, fine crepitant rales in supra-spinous fossa on deep inspiration, and on coughing only. Heart normal, moderate accentuation of second pulmonary sound. Temperature varied from 98 to 100. Pulse 112 to 120. Cough moderate, sputus muco-purulent, containing few tubercle bacilli; shortness of breath on taking any kind of exercise, and easily fatigued. Weight 125, a loss of 16 pounds from the average normal weight; appetite fair, other functions normal.

Walking on level floor of piazza increased the pulse rate to 136, sometime 156. Pulse before rising in the morning, 78.

Patient was kept in bed for several days with marked diminution of pulse rate, varying during this time from 72 to 84, no accent on

closure of pulmonary valves. Temperature 98.2 to 99.3, appetite improved. Could not be persuaded to keep his bed longer, but his exercise was restricted, nevertheless the pulse rate became more frequent as the day advanced, and the evening observation was rarely less than 120, small in quality, frequently it reached 130. Temperature 98.3 to 100.2.

Another period of rest in bed for two days was followed by the same favorable change as before, and the patient himself appreciated that he felt stronger and that he had a better appetite and less cough.

Treatment with Tuberculinum Purificatum was instituted on admission, so that 1.5 c. c. had been reached by the end of the third week. Maxima temperature at this time 99° F.

End of fourth week, less shortness of breath, can take more exercise, pulse 100 to 108, maximum temperature 99, gained 2 lbs. in weight, cough greatly diminished, expectoration still contains few tubercle bacilli.

Examination of chest shows absence of crepitation in left apex, area of dullness on right side diminished, no rales, no accentuation of second pulmonary sound.

The same day patient walked half a mile, part of the distance a moderate up-grade, and on his arrival at the institution pulse was 144 and small. Patient much out of breath. Examination the following day showed fine, moist rales in right upper lobe, pulse 112, evening temperature 100.5, no appetite, short of breath on the slightest exertion, cough increased. Rest in bed for three days caused all symptoms to moderate.

Several such experiences occurred during the second month, at the close of which the patient was up all day, but had not left the grounds of the institution again. Examination showed absence of rales, dullness confined to a small area above and below clavicle, here still bronchial prolonged expiration, normal respiration everywhere else. No accent of second pulmonary sound, pulse 80 to 88, temperature normal, no cough, nor expectoration, all functions satisfactory, gained three pounds. Treatment, Tuberculinum Purificatum up to two and one-half cubic centimeters daily. End of third month, patient could walk a mile without increasing pulse rate beyond 96, no shortness of breath, not fatigued, temperature normal. Physical examination showed still dullness, prolonged expiration over seat of small cavity; patient gained six pounds, says he feels better than he has done for years. Received Tuberculinum Purificatum 2.5 cubic centimeters daily. Discharged.

Two years since discharge have now passed, and patient enjoys perfect health.

CASE 2.—Young lady, age 19. No phthisical family history, several scrofulous glands were removed from the neck six months before. General health began to fail soon thereafter, a hacking cough developed, patient became short of breath, was easily fatigued and

quite anæmic, lost 7 lbs. in last six weeks. Was sent to Asheville for climatic benefits, and having made no improvement for two months her home physician advised her to consult me.

Examination showed a slightly short percussion note over both upper lobes, anterior and posterior, with crackling rales and occasional ronchi in their area, she had lost at the rate of one pound per week since in Asheville, the same as she had done at home, cough had become more troublesome, expectoration was mucous, and contained no tubercle bacilli.

Respiration was superficial and frequent, 26 while at rest, pulse 132, temperature 100 at 3 P. M. Vital capacity 105 cubic inches, slight accent of second pulmonary sound.

In digestive organs nothing abnormal, appetite poor, urine normal, had not menstruated for two months. Blood count nearly normal, hæmoglobin 70 per cent. Patient complained of fatigue, shortness of breath, and restless nights, harrassed by cough.

Unwilling to enter the institution I ordered Pepto-mangan and Strychnine, and advised absolute rest in bed for several days, and to report progress through her mother, who was with her. No material change in her condition after a week, excepting that her pulse taken morning, noon and night was reduced from an average of 120 on the first day to an average of 112.

Contrary to advice, patient came to my office on eighth day with a pulse 144, respiration 36, coughing incessantly; another week's rest in bed was, however, agreed to, at the end of which pulse averaged 108, respiration 20, temperature normal and cough much better; had lost no weight.

I was unable to keep her in bed longer, and a compromise under which she was to be up two hours in the forenoon and two hours in the afternoon had to be made, but the next week we again lost ground.

This time she came to the office in a carriage and rested for half an hour before I saw her. Pulse 120, respiration 25, temperature 11 A. M. 99.2. Average for the week: Pulse 128, respiration 28, temperature 99.5.

Treatment with Tuberculinum Purificatum commenced, and continued for one month with the same course of management, reaching 1.8 c. c. at the end of the month.

Examination showed average pulse 1st week 124, respiration 30, temperature 99.5. 2d week, average pulse 132, respiration 30, temperature 100; 3d week, average pulse 116, respiration 22, temperature 99; 4th week, average pulse 105, respiration 18, temperature 99, cough, shortness of breath and appetite better; gained 4 lbs. in weight.

Examination of chest showed same conditions as before, but rales were greatly diminished, no accentuation of second pulmonary sound.

During the next month still further improvement resulted, all rales were gone, and slight dullness remained only on right side above

clavicle, the same side where the glands had been extirpated, and on which several enlarged glands were still noted when she first came under my care.

At the end of sixth month from the time she first came under my care she was discharged, the enlarged glands had disappeared, the extreme right apex was still slightly dull, and there the expiration was prolonged. Vital capacity increased to 200 cubic inches.

Pulse rarely exceeded 84, and averaged 80 for the last three months; no cough or shortness of breath, or other symptoms remained. She had gained 22 lbs. and felt perfectly well, and continues so at this time, nineteen months since her discharge.

The Strychnine was stopped at end of third month, Pepto-Mangan at end of fourth month, and purified Tuberculin was discontinued at end of fifth month. She took 320 c. c. in all.

CASE 3.—Male, age 33, no tubercular history, father, however, died in an insane asylum, and a brother has epilepsy. Was admitted to the Winyah Sanitarium after two years' duration of his illness, which had followed the usual chronic course.

More recently his symptoms have grown worse, in so far that as he becomes greatly exhausted on even slight exertion, and his breathing has become very short, while cough and expectoration have increased.

Physical examination shows fibroid changes in right upper lobe, well marked cavity below right clavicle, moist rales throughout lung, more numerous in the lower than in the upper lobe.

The left apex is infiltrated, percussion note is short, numerous catarrhal rales throughout both lobes, fine rales in the apex, and in supra-spinous fossa, and coarse rales in the lower lobe. Sharp accentuation of second pulmonary sound. Temperature varies from 97.8 to 101.5. Respiration when at rest 26, pulse 120, vital capacity 140 cubic inches. Expectoration contains tubercle bacilli, few streptococci and staphylococci. Appetite fair, bowels regular, and urine normal. Slight infiltration of left true vocal cord; patient has been losing weight steadily for several months past, present weight 126. Blood count and hæmoglobin normal, took codeia $\frac{1}{2}$ grain four or five times a day for cough, and has recently increased the dose to 1 grain at bed time, and once or twice during the night.

After ascending an easy flight of stairs the pulse is very small, 156, respiration 48, an hour later pulse 132, respiration 30, and an hour after that and in bed pulse 128, respiration 30, temperature 103.

Kept in bed the following day, pulse averaged 120, respiration 24, temperature 98 to 101.5 F., cough the same, no codeia was given.

Second day, pulse average 116, respiration 24, temperature 98 to 101.2, less cough, no medication.

Third day, pulse average 112, respiration 25, temperature 97.8 to 101.2. End of first week, pulse average 112, respiration 24, maximum temperature 101.

During the second week the patient is allowed to sit up in reclin-

ing chair by the open window one hour in forenoon and one hour in afternoon without material change in pulse, respiration and temperature. Cough, however, is much less. Medication, 1-20 grain strychnia three times a day. Third week, no material change, sitting in reclining chair increased to six hours per day.

Fourth week, Tuberculinum Purificatum 0.1 increased to 0.5 is added to treatment. No change in pulse and respiration. Maximum temperature averages 101.2, local examination of chest shows no change, lost four pounds.

Fifth week, treatment continued, Strychnia 1-20, three times a day. Tuberculin Purificatum increased to 1.5 c. c. per day.

Sixth week, condition unchanged. Tuberculin Purificatum 1.5 c. c. to 1.8 c. c. Strychnia discontinued.

Seventh week, pulse averaged 108, respiration 20, temperature 100.5, expectoration increased, plenty of tubercle bacilli, few cocci. Tuberculinum Purificatum 1.8 c. c. daily.

Eighth week, Tuberculinum Purificatum increased from 1.8 c. c. to 2.5 c. c., cough much better, expectoration decreasing, appetite improved, gained 3 lbs., feel stronger, wants to walk about.

Pulse average 96, respiration 18, temperature normal until 5 P. M., then reaches 100 F. and declines to normal by 8 P. M.

Examination of chest, rales greatly diminished in both lungs, better resonance over left upper lobe, second pulmonary sound still accentuated, pulse rate increased to 132 during examination, infiltration in larynx has disappeared.

Tenth week, pulse averages 100, respiration 20, temperature 100.2, patient has been allowed to walk a little on piazza every day for last week past.

Treatment, Tuberculinum Purificatum 3 c. c., continued every day except Sunday.

Twelfth week, patient has taken more exercise and been allowed an hour's carriage ride every other day. Pulse average 92, respiration 18, maximum temperature between 99.5 and 100.2. Gained five pounds, no longer short of breath, and no sense of fatigue from allowed exercise. Coughs only early in the morning, sputus mucous, no bacilli.

Examination chest, few rales in right upper lobe only, left apex normal, area of percussion dullness on right side not changed, second pulmonary sound slightly accentuated still.

Sixteenth week, patient is up all day, but spends the greater part in reclining chair upon piazza, takes more exercise, and rides out for several hours every day. Some days he has no cough at all, he has no more expectoration, gained altogether 17 lbs., feels better than he has done for years. Pulse average 82, respiration 18, temperature maxima 99, received Tuberculin Purificatum 2.0 c. c. every day except Sunday.

Physical examination of chest, no rales anywhere, percussion dull-

ness on right side unchanged, left lung entirely clear, no accentuation of second pulmonary sound, vital capacity 205 cubic inches.

Patient is made to quickly ascend two flights of stairs and return for examination immediately thereafter. Pulse 100, respiration 20, slight accentuation of second pulmonary sound.

He feels himself entirely well and requests his discharge. This was nearly two years ago.

I learned of a relapse last winter following unusual physical over-exertion by running to catch a street car. Cough returned, also slight rises of temperature were noted for a week, pulse was rapid for about ten days, but all symptoms subsided within a month, without medication, the only measure taken was rest, first in bed, and afterwards by restriction of exercise.

In cases where more advanced changes are present, and in which the pulmonary circulation is obstructed by obliteration of the involved vessels, or by caseous, fibroid and destructive changes, the use of specific remedies can at best procure only partial relief, or they may fail entirely, and in any case the management of the patient must be such that all such conduct which may further reduce the power of the heart is strictly avoided.

This may imply absolute rest in the recumbent position for such time as may be required for the disappearance of local pulmonary congestion, and until the heart has so far recovered its tone that it is adequate to carry on the circulation without strain.

Such a course is essential even at periods where fever is slight or absent, and those who will follow it will be surprised at the diminution of the cough and expectoration, the better color of the patient, and of the return of strength and well being, together with a good appetite.

If fever is also present, it will at least be reduced, and if not due to destructive processes or retention of decomposing secretions it will disappear under specific medication.

In fever cases, the good effect of rest upon the heart evidenced by the subsidence of other symptoms is not as soon observed as in those where the obstructed circulation and heart fatigue are chiefly responsible for an unfavorable progress.

When the circulation is improved, short periods of sitting, standing and eventually walking are permissible, and in fact desirable.

Great care and constant supervision, with absolute control of the patient are, however, essential, because the patient, feeling well enough to do more, is only too apt to exceed safe limits, when he quickly relapses into the former state.

The little exercise is, however, beneficial, so long as it is within the power of the heart to easily maintain it, under its gradual increase; and with the improvement of the general nutrition, the heart becomes stronger, leading eventually to a state of hypertrophy of the right ventricle, perfectly competent to maintain the circulation even under a greater amount of exercise.

Such a result is attainable in the early stages, and even in some advanced cases, and without it our patients are doomed to an unfavorable course.

The disregard of these symptoms on the part of the heart by the attending physician is certainly a serious oversight, since in all such cases the restoration of a good circulation is *sine qua non*, to arrestment of, or recovery from the disease.

In addition to the necessary rest until the congestions are relieved and the heart has gained in strength, and the cautious use of such supervised exercise as shall gradually strengthen the right ventricle, we have in strychnine a remedy capable of steadying the heart action and aiding in maintaining it, until by hygienic and dietetic measures we can sufficiently increase the patient's nutrition, when the strychnine can be gradually withdrawn.

In conclusion, I venture to express the hope that in calling attention to these important symptoms on the part of the circulation, those who have heretofore given insufficient attention, may be induced to study the subject practically, and until better means can be devised, that they will make a trial of those which I have found most valuable in my own practice.

SOME REMARKS ON ASTHMA—ITS CAUSE AND TREATMENT.*

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The name asthma, derived from the Greek work *ασθμαίνω*, to gasp for breath, was originally used to describe a great variety of diseases of which embarrassed respiration was only a prominent symptom. Gradually a distinct disease was recognized and a somewhat similar condition causing like symptoms, but produced by definite organic lesions in some visceral organ, was excluded.

Early in its history all observers agreed that asthma was essentially a neurosis—a functional affection only of the nervous system, unattended by any inflammation or ascertainable structural lesion—occurring most commonly in persons predisposed by hereditary influences to disturbances of the nervous system. The sudden onset of the disease, the influence of physical conditions upon the severity of the attacks, the presence of prodromata and the widely differing existing causes, as well as the normal intermediate condition between the paroxysms all stamped it as a neurosis, but up to a comparatively recent date the chief etiological factor in the production of the disease was still uncertain.

Bierman claimed that the dyspnoea was due to a spasm of the involuntary circular muscular fibres of the bronchial tubes produced by

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direct irritation of the mucosa, as in acute bronchitis, or indirectly by remote conditions acting reflexly and producing a similar result. For a number of years this was the most commonly accepted theory and is still supported in many of the latest text books. The disease thus became known as spasmodic asthma in contradistinction to the asthma produced by some organic lesion. Wintrich later held that it was caused by a spasm of the diaphragm, Leyden that the octohedral mucin crystals he discovered in the sputum were the direct initiatory cause; while Curschmann with his discovery of a spiral arrangement of the sputum conceived the idea that the essential character of the disease was an inflammation of the bronchioles and proposed to call it "bronchiolitis." Haig advanced the theory that it was a uric acid storm dissipating an excess of this substance in the blood. In 1872 the spasm theory received its death-blow when Weber announced the theory which has rapidly gained adherents, and which in the light of clinical experience and enlightened observation has made a more rational and definite nomenclature possible, though it may be long before the old name will disappear. Weber taught that the essential cause of the paroxysm was a vaso-motor paresis of the blood vessels of the bronchial mucous membrane, under the influence of which the membrane is at first dry and swollen, giving rise to both inspiratory and expiratory dyspnoea with sibilant and sonorous rales heard on auscultation and the subsidence of which is marked by the sero-mucous exudation from the engorged blood vessels which characterizes the cessation of the paroxysm and allows a gradual return to the normal condition which terminates an individual attack.

In 1885 Bosworth first announced the identity of hay fever and asthma, claiming that the former was a vaso-motor rhinitis due to a paresis of the blood vessels of the nasal mucosa, and the latter a vaso-motor bronchitis due to a paresis of the blood vessels of the bronchial mucous membrane, the paroxysm in each case being excited by an atmospheric element—in hay fever some vegetable emanation, as the pollen of flowering plants, in asthma unknown. He emphasized the fact, now being recognized universally, that a morbid lesion in the nasal or naso-pharyngeal mucous membrane is a prominent factor in causing the attacks.

Sir Andrew Clark, in 1887, admitted that "if the structural changes in the nasal mucous membrane observed in an attack of hay fever were to occur in the bronchial mucous membrane their presence would afford a complete explanation of the facts observed in bronchial asthma."

For a long time before the true nature of hay fever was known, that is before it was shown to be due to a hyperæsthetic condition of the nasal mucosa, with perhaps some hypertrophic changes rendering it more sensible to irritation by foreign particles such as pollen, the removal of nasal polypi and the treatment of the engorged mucous membrane gave occasionally rapid and complete though little under-

stood cures. Now in a large number of cases the treatment of obstructive inflammatory lesions in the nasal fossæ is regarded as the most successful.

The true nature of asthma remained obscure until its pathology was shown by Bosworth to be identical with that of hay fever, the morbid lesion being the same but occupying a different site; he therefore calls the disease a vaso-motor bronchitis and hazards the opinion that a very large majority if not all are due to a nasal lesion. Osler, in his text book on medicine, says that, "according to some specialists all cases of bronchial asthma have some affection of the upper air passages," and though he thinks this erroneous, yet he acknowledges the debt of gratitude due them for showing that some have.

The disease is notoriously an intractable one. Its etiology presents many perplexities, but out of a hazy atmosphere of apparently conflicting clinical facts has emerged at last a clear and definite pathologic picture upon which we can base a rational and successful treatment. Regarding bronchial asthma as a neurosis, involving chiefly the pneumogastric nerve, it is easy to understand that inherited neurotic tendencies and various dyscrasiæ may act as predisposing causes, but far less easy is it to explain the almost endless number of existing causes which seemingly would contradict any single theory as to its causation.

These exciting causes may act directly by irritating the vagus or sympathetic nerves in the bronchial mucous membrane, the dyspnoea of acute and chronic bronchitis, that following the inhalation of irritating vapors or caused by the pressure of enlarged cervical glands illustrate this.

Again, they may act indirectly from a distance or reflexly, as examples of this are the asthmatic symptoms due to nasal lesions, diseases of the gastro-intestinal and genito-urinary tracts, diseases of the heart, brain, kidney and skin, poisons in the blood, such as gout, rheumatism, urea, malaria and drugs acting on the centres of respiration through the medium of the circulation.

But behind all these favoring conditions is the chief etiological factor, viz, "a weakened condition of the mucous membrane of the bronchial tubes arising from some local disorder in the nose, under the action of which worms, gastric indigestion and other remote causes, as mentioned above, are capable of producing an asthmatic attack."—(Bosworth).

Considering asthma as a neurosis, those cases which are due to organic lesions in important viscera, as the heart, kidney, brain or intestines do not represent true types of the disease and hence are not amenable to the same treatment. Notwithstanding this, Dr. Lockwood of New York, in 1897, cited a number of cases to prove that clinically in those persons subject to attacks of pseudo asthma dependent upon actual lesions elsewhere, nasal obstruction is more common than in ordinary individuals, and that its removal often is

followed by material benefit. Defective circulation and coincident dyscrasæ render persons suffering from cardiac and other lesions more liable to engorgements and hypertrophies of the turbinate mucosa, and under such conditions we may be misled into thinking the asthmatic symptoms, due to an existing cardiac lesion for example, when really they are only pseudo-cardiac. At any rate, it is no doubt true that occasionally even in those cases where definite lesions exist elsewhere the presence of nasal obstruction will complicate and aggravate the symptoms, and that its removal will give gratifying results.

Clinical experience has proved that the treatment of asthma, or vaso-motor bronchitis, based upon the assumption that it is a nasal reflex in a majority if not all cases, is a rational one and the one which promises the most successful results.

Bosworth holds that asthma is dependent upon three conditions, (a) a general neurotic condition, (b) a diseased condition of the nasal mucous membrane, (c) some obscure atmospheric condition exciting the paroxysm, and that its treatment consists, first, in removing any morbid condition in the upper air tract, nose or naso-pharynx; second, in correcting as far as possible the neurotic habit, and third, in relieving the paroxysm.

The use of internal remedies need not be excluded while insisting on the importance of removing lesions in the nose or naso-pharynx, for all agree that they often have a marked effect. Iodide of Potassium in ten or fifteen grain doses, three times daily, is of the greatest benefit and most successfully modifies the neurotic habit. Cocaine applied locally and inhalations of stramonium and saltpetre fumes seldom fail to give relief during the paroxysm. General hygienic and climatic treatment are always indicated, but in spite of all these many cases stubbornly refuse to improve, and in such it is that nasal treatment frequently gives the most brilliant results. Cases which fall into the hands of the rhinologist are those in which other plans of treatment have been tried and exhausted.

The conditions in the upper air tract most frequently found in asthmatics are hypertrophic rhinitis, polypi, septal spurs, adenoid vegetations in the vault of the pharynx and enlarged tonsils. My personal experience in two years extended over eleven cases, the details of which I will not mention, but in which all other methods had been faithfully tried and failed. In four of these adenoid vegetations were removed, with three cures and one improved; in two the galvano-cautery was applied for hypertrophic rhinitis, with one cure and one improved; in two septal spurs were sawed off, with one improved and one unimproved; in three enlarged tonsils were excised, with one cure, one improved and one unimproved, making a total of five cures, four improved and two unimproved.

Only one case merits detailed mention. Miss E. T., aged 21, consulted me January 10, 1898, for deafness in both ears, which had

gradually been increasing for some months. Hearing in each ear ¹/₃₆, bone conduction normal.

Finding upon external examination evidences of a chronic catarrhal otitis media, the nose and throat were inspected next. The throat being unusually irritable I proceeded to apply with a curved applicator some cocaine to the naso-pharynx. To my surprise the probe had no sooner passed behind the palate than a most distressing attack of asthma was started up which lasted some thirty minutes. During this time, while the patient was recovering, her mother explained to me that for fifteen years the young lady had been subject to these attacks of asthma, that she had tried several doctors and many advertised cures without relief, and that having no idea anything could be done for it she had not thought of mentioning these facts at first.

After a sufficient time had elapsed to permit a further and complete examination, adenoid growths were seen in the naso-pharynx and their thorough removal under chloroform advised. It was explained that the growths were causing the deafness, and in all probability the operation would relieve the asthma also. The growths were removed shortly afterwards, and in the three months and more which have elapsed she has not had a single attack of asthma and her hearing has become perfectly normal again.

The patient assured me that for fifteen years she had rarely slept on less than two or three pillows, that she had been obliged to give up the bicycle, and that the ordinary duties of life were frequently interrupted by severe attacks of dyspnoea. Furthermore, for years she had gained only comparative comfort by the constant use of various asthma remedies, while since the operation she has not been annoyed on a single occasion.

This case is a brilliant example of the benefit of local treatment in asthma, and I cannot lose the opportunity to emphasize the importance of the naso-pharynx as a field for preventive surgery—a surgery which undertakes the removal of existing conditions, not on account of any danger resulting from their presence *per se*, but on account of the dangers or sequelæ which may follow in the future.

Adenoid growths and enlarged tonsils produce similar disastrous effects, both local and constitutional, and there are few operations in surgery which accomplish so much with so little risk to the patient.

“If local treatment fails we have at least prepared the way for the better action of local remedies.”

In all reflexes there is no method of making a diagnosis other than the success of local treatment, and when all general and medicinal measures have failed we believe that a large number of cases of asthma will exhibit some exciting lesion in the nose or naso-pharynx, and that its removal will either cure or markedly improve the disease.

GERMS IN HEALTH AND DISEASE.*

By J. W. DUNCAN, M. D.,
Atlanta, Ga.

Much attention has been given to the germ theory of disease for a number of years, and much has been learned through patient and faithful bacteriological research.

Bacilli peculiar to certain contagious and infectious diseases have been claimed to be so constantly present as to aid us very much in diagnosis; thus, Eberth's bacilli are present in typhoid, gonococci in gonorrhoea, tubercle bacilli in consumption, Loeffler bacilli in diphtheria, Nicolaier's bacilli in tetanus, etc. We are not so much surprised that very great attention has been given to this subject for the past fifteen years, as that so little was given it previously. When we remember that germs are the "Alpha and Omega" of all animal as well as vegetable life.

With suitable environments the vegetable germ springs into life—first, the blade; then the ear; and after that, the full corn in the ear—each seed possessing germs peculiar to its specie. So it is in the animal kingdom. The ovum having been vitalized by the spermatozoa, begins its germination and continues it, not only until a certain stage of utero gestation, but until delivery, and on and on through the natural life of the individual, so that at no stage of life can a person be found to be free from micro-organisms. They continue to multiply, and having served their functions in the organism, die and are thrown off as waste material, but not until millions more have been evolved to take their places.

I have not been trying to describe diseased germs, but normal non-toxical ones, such as are found in great numbers in all healthy animals. But a variety of influences may be and doubtless are brought to bear on these normal micro-organisms and they become poisoned by various ptomaines, etc. The character of the poison determines the effect on the normal germs, and thus we have the various bacteria developed. Even the bacteria coli communis, which was thought at one time to be innocent and in fact useful to the economy, is more and more showing its pathogenic virulence. This, to my mind, is only the result of a toxin, and when thus poisoned their physical appearance is so very much like Eberth's bacilli that bacteriologists are puzzled to differentiate them.

Dr. Heneage Gibbes, who is a most renowned scientist, and one of the foremost bacteriologists of the world, and who has for several years occupied the chair of bacteriology, etc., at Ann Arbor, Mich., while recognizing the existence of bacteria and their possible influences, denies their importance as a causative factor of disease. He concedes to Dr. Koch the discovery of the tubercle bacillus and the bacillus of cholera, but he denies that in either instance has the etiological influence been demonstrated. "The idea," says he, "that we must dodge a Klebs-Loeffler bacillus here to escape diphtheria, a

* Read before the Forty-ninth Meeting of the Georgia Medical Association, Cumberland Island, Ga., April 22, 1898.

bacillus tuberculosis there to escape consumption, or a comma bacillus to evade cholera, etc., is a mere fad—nothing more nor less.” He denies, too, even the fact heretofore urged as a proof of their etiological nature, that these pathogenetic micro-organisms are always present in certain diseases. He declares that he has conducted hundreds of autopsies on consumptives without finding a trace of bacillus tuberculosis.

As before intimated, the peculiar characters of the bacilli, as to their form and violence, are determined by the *materies morbi*, which act on them. Thus the various forms, as streptococcus, staphylococcus, asteriform microbes, the vibria, gonococci, etc., and not only the form and virulence are determined by the special toxin, but their size and various characteristics as well. The toxin which contaminates the normal micro-organisms, in a given case, may and do cause the same to become abnormal, and thus the diseased germs help to multiply the morbid agent, as may be demonstrated in a suitable culture medium.

Normal germs in a healthy individual may become diseased by the use of unwholesome food, impure water, alcoholic stimulants, etc., and, by the way, the alcoholic bacilli which have been described by bacteriologists were originally normal germs, but which have changed their form and character by becoming diseased through the toxic influence of alcohol.

But this is only one way by which a healthy person may become diseased. Bacteria and their toxins from a diseased person are communicated by contagion and infection to an individual previously healthy, and if the virulence of the infection be too great for the leucocytes to conquer, the *materies morbi* invade germ after germ and these sick ones multiply and augment the enemy's force, until the patient succumbs to the disease, or until remedies are applied to aid nature in neutralizing, eliminating and subjugating by phagocytosis the enemy. Take one example of a diseased germ affecting a healthy one: the spermatozoa from a syphilitic patient fecundating a healthy ovum, and thus we have inherited syphilis in the offspring.

All infectious diseases are now claimed to be caused by pathogenic germs, or their ptomaines. Thus bacteria may be local or general. When they are local, as in the case of Loeffler's bacilli, their toxins enter the general system and produce the constitutional disturbance. In septicæmia they are general, also in pyæmia.

Certain bacteria seem to have a predilection for certain organs, as the pneumococcus, etc. Ever since man was created two forces have been at work in the body—the one constructive and the other destructive—both equally essential factors in the maintenance of health, and whatever interferes with the normal metamorphosis of the tissues is an enemy. And ever since that memorable edict went forth, “Dust thou art and unto dust shalt thou return,” there has been a war waging, and at times raging, in every human body.

The *vis medicatrix naturæ* constituting the army of defense, while

the bacteria or their ptomaines, etc., are the invaders. The army of defense is composed of all the vital forces, while the marauders include in their ranks all the devitalizing agents known to man. They are in the air we breathe, the water we drink, the food we eat, and ever and anon we come in contact with one of our own race who has been overcome by the enemy, and is suffering with a loathsome infectious disease.

Let us suppose it be small pox. The toxins invade the system, uninvited and unobserved, and at once begin to recruit their forces from the ranks of the non-toxic micro-organisms, and during the entire stage of incubation this process goes on. So that at the expiration of nine to fifteen days many millions have been enlisted, drilled and armed with the same implements of destruction, and now the declaration of war is made. The vital forces are very much handicapped in consequence of so many of its privates having been unwittingly enlisted in the ranks of the enemy—for these while protesting against the invasion of their citadel, are powerless to throw down their arms and break ranks. The vital forces which as yet have not been duped into the service of the enemy bring all their reserve force into active service. The battle is furious, it rages for days and weeks, but thanks be to God, the great Giver of all good, of whom it is said, "He maketh the wrath of man to praise him, and the balance of wrath He restraineth," when the smoke of battle shall have cleared away we find that the enemy has been subjugated. The leucocytes have devoured the bacteria and neutralized their toxins. We are amazed when we investigate the field, and the army of defense is brought before us for review. The privates, who have crowned themselves with honor on the field of battle, have been promoted, are now captains, colonels, majors and generals. Their resistance against the same enemy has been multiplied a thousand-fold by being armed with a proteid called mycophylaxin, imparting to the phagocytes increased power to devour the bacteria. The same enemy may try as it may to enter the citadel, let its toxins, or, if you please, the pathogenic organisms invade the system, but you will find that they cannot again do their work of destruction, their bacteria will be devoured by the phagocytes, the vital fluids will neutralize their toxins, the vital energies are too well disciplined to be again enlisted in the ranks of the enemy. The patient is immune. This is, in a measure, true of most of the infectious diseases—yellow fever, typhoid fever, scarlet fever, measles, variola, etc.,—while others are rendered partially immune, or only temporarily so. In this class we find diphtheria, Asiatic cholera, pneumonia, gonorrhœa, malarial fever, etc. But will the result justify the means by which the immunization was accomplished?

Certainly not. The war is a fearful combat, and notwithstanding the energies of nature, aided by all the devices of science, many millions of our race have succumbed, and after death the vital energies cease; then, if the embalming fluid be not at once used, these agents

of destruction continue their work unimpeded, and the body soon returns to dust.

How can we most successfully limit the spread of contagious diseases?

In the operating room extensive major operations are being done every day, under the aseptic and antiseptic regime, and notwithstanding the extensive field explored, not a microbe or bacteria can get a foothold. All honor to the men who have assisted in the work which has made these results possible. Much is being done in private practice to limit the spread of disease, but very much more should be done. The excreta from the sick, whether from the bowels, kidneys, lungs or skin, should be disinfected, and as soon as possible the house should be fumigated. It has been said that cleanliness is next to godliness. Therefore, our sanitary boards should be vigilant in keeping everything clean that is in their province. There should be more attention given to the water and milk we drink, and that there be no source of contagion from them. Meats and vegetables demand investigation. Each individual should observe the laws of sanitation and hygiene relative to his own person and premises. By so doing he will be the better able to resist the contagion should he be exposed.

It is not surprising that it has been said that the latter-day physician has little standing in the eye of the profession if he does not live in daily fear of being devoured by "an army of animalculæ or destroyed by a host of bacteria," nor is it surprising that up in the north there are many men who spend their lives hunting worms, "just like a goose, a 'tackin' Latin names to 'em an' lettin' of 'em loose."

Immunity may be natural or acquired. We have a good example of acquired immunity as the result of inoculation with the virus of small pox, or as is now the custom, vaccination with bovine virus. When a person is vaccinated and re-vaccinated until he is vaccinated he is immune. Much experimentation has been made with various antitoxins, the results of which are far from being satisfactory. It is to be hoped that more light will be given and better results obtained, but until a safe and reliable preventive shall have been found, I would urge the necessity of a strict quarantine system, and I would emphasize the importance of a well regulated national quarantine. When everything shall have been done to prevent the infection and have failed, what can we do to arrest the ravages of the enemy?

We are told to use antiseptics. What are they? How do they act? Any agent that counteracts or antagonizes sepsis is an antiseptic. How these agents act can not be answered so easily. Some neutralize the toxins, aid the phagocytes in devouring the bacteria, and help to remove the debris from the system. The agent should not be strong enough to injure the normal fluids or solids of the body, for this would defeat the purpose for which they were used.

The leading object of every remedy used against sepsis should be

to conserve nature, whether the agent be a so-called antiseptic, a vegetable or a mineral tonic, or one which will eliminate effete material from the system. By whatever means the energies of nature are increased and the sentinels of health reinforced, sepsis is antagonized, phagocytosis is encouraged. Thus strychnia, quinine, arsenic, phosphorous, iron, salines, etc., are in a sense antiseptics. In other words, any agent that will neutralize the poisons or aid nature in destroying them is an antiseptic, whether the *modus operandi* be by neutralization, elimination, subjugation, by phagocytosis aided by positive chemiotaxis. The latter being the leading mode by which the enemy is to be conquered.

Let us improve the arsenals, strengthen the navies, reinforce the standing army, and call out the reserves, and we shall have borne some humble part in conquering the enemy, restoring peace, and preserving intact the republic, and our patients will rise up and call us blessed.

THE IMPORTANCE OF CAREFUL CHEMICAL ANALYSIS IN GASTRIC DISORDERS.*

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In this short paper I wish first to show that the technique of chemical analysis of gastric contents is by no means difficult; next, that in the determination of a correct diagnosis it is of the utmost importance. The skill to obtain and analyze stomach contents does not lie beyond the dexterity and ability which every physician ought to possess, and it certainly should be utilized when we come to consider that the diagnoses of diseases of the stomach are based as much upon the results of our own investigations as upon the statements of the patients themselves.

I shall content myself, in this paper, with only a few of the more important tests, and ones requiring no apparatus or reagents that the average practitioner does not possess.

TEST MEAL.

This consists of a common roll and a glass of water. Some investigators prefer a roll of a definite weight, containing known quantities of proteid fats, sugar, etc. Others allow a cup of weak tea, instead of water. I consider any dry roll satisfactory, and prefer water to tea as it contains no acid. Best given early in the day, as stomach is then empty.

STOMACH CONTENTS.

The next procedure is to obtain some of the stomach contents a few hours after eating test meal. This I secure by means of the stomach tube. I always use the soft rubber tube with an opening in

* Read at the Forty-ninth Annual Meeting of the Georgia Medical Association.

the tip and one or two fenestræ very near the end. I prefer one with a collapsable bulb, so that by squeezing to expel air and pinching top together I get a vacuum sufficiently powerful to draw into the lumen of the tube whatever fluid contents may be in the stomach. I regard this as an ideal instrument for this purpose, and one which in the hands of even the most inexperienced is incapable of injury to the mucous membrane. After filtering contents of stomach tube, you will find a pale yellow-colored liquid, with perhaps tinges of a greenish yellow, if there has been much retching or nausea on introducing tube, due to a regurgitation of bile. If filtrate is acid you will ascertain whether due to free acid or acid salts. For this purpose use Congo paper, which retains its brownish red color in a solution of acid salts, but turns blue in presence of free acid. Having found free acid present, you first test for HCl. For this purpose use

BOAS' REAGENT.

Resorcin Resublim	gr. lxxv.
Sach. Alb.....	gr. xlv.
Spts. Dilut.....	℥iiss.

Mix, and into this solution dip strips of filter paper and allow to dry. With the tip of a glass rod transfer a drop of the filtered stomach contents to the paper and heat gently until dry. A brilliant red spot will appear if free HCl. is present. By comparative neutralization of stomach contents and HCl. solution, with caustic soda, the percentage of free acid may be determined.

LACTIC ACID.

If after finding the stomach contents give an acid reaction, but the tests for HCl. are negative, you proceed to test for the organic acids. Of these I shall speak of lactic acid only, as it is the one which most concerns us in making a correct diagnosis. In testing for this acid I find Uffelmann's test, while not absolutely definite, perfectly satisfactory, as the presence of a small quantity of the acid is not diagnostic, and in all cases where Uffelmann's test does not give the characteristic reaction, the lactic acid present may be disregarded.

This test consists of a neutral solution of ferric chloride to which is added a few drops of a weak carbolic acid solution and the whole diluted with water until it assumes a beautiful amethyst blue color. To this a few drops of the gastric fluid are added, and if lactic acid be present the blue color is replaced by a canary or greenish yellow.

PEPSIN.

It is seldom necessary to test for pepsin, as it is almost an established rule that where there is sufficient HCl. there is a sufficient secretion of pepsin ferment. But where for any reason you wish to make such digestion tests, the simplest and most practical way consists in placing in each of four test tubes a small quantity of gastric juice, and in each of these a small thin slice of the white of a hard

boiled egg. To the first tube add nothing; to the second a few drops of HCl. solution; to the third a pepsin solution, and to the fourth both HCl. and pepsin. Place all in a warm chamber and by observing the time required to digest the particles of albumen in each you will readily discover the ingredient lacking in the gastric juice.

ABSORPTION TEST.

As this test is of great use in arriving at a diagnosis of cancer of the stomach, it may be of interest to describe the method of making it. In a normal stomach the administration of iodide of potash is shown in the saliva in about five minutes, while in a cancerous stomach it is from one-half to one hour after administration before it can be detected. To determine the time required have patient expectorate in a glass containing a solution of silver nitrate, and as soon as the saliva contains iodide of potash it will turn yellow. The above tests are all that are necessary to make ordinary gastric analysis.

I will now present a few cases that have recently occurred in my practice, where a positive diagnosis would, to say the least, have been very difficult, if not impossible, at the time, had I not made frequent chemical tests.

CASE 1.—J. H. B., white male, age 56, carpenter. Called to see this gentleman, found him very much emaciated, painful expression, pale, muscles flacid, patient complaining of a feeling of distension, especially after eating, with considerable pain just below xiphoid. For a year had poor appetite, constipated, persistent heartburn, occasional attacks of hiccough, almost constant eructations of offensive gas and frequent vomiting. Examination of urine showed small quantity of albumen but no casts. Palpation revealed slight enlargement of liver, spleen normal in size, no tumor or sensitive spot could be discovered over region of stomach. Percussion revealed a considerable enlargement of stomach, the lower border being on a line a little above the umbilicus. On introducing stomach tube to test gastric fluid found that I had to carry it to a distance of twenty-three inches, which also showed considerable dilatation. There was no enlargement of glands and no oedema of joints.

From the symptoms in this case one would be lead to conclude he had a case of simple dilatation of the stomach to contend with.

However, after repeated chemical examinations, in which I seldom found free HCl. and always a very perceptible amount of lactic acid, I made a diagnosis of cancer of the pylorus, which was verified at his death a few months later.

CASE 2.—Mrs. W., white female, age 48. I was called to see this case in consultation with Dr. D., during an alarming hemorrhage from the stomach. Found her in a state of collapse, vomiting blood and mucous, purging and utterly unable to retain anything in the stomach. Controlled hemorrhage with morphia and ergotin hypodermically. Resumed examination next day. Found tongue coated, very foul breath. In addition to the pallor incident to hemorrhage,

noticed earthy color of the skin. No tumor in abdominal region that could be discovered, although examination was considerably interfered with owing to gaseous distension of stomach. Suffered with sharp lancinating pains in stomach, severe heartburn, frequent belching and ascent of fluid into the mouth.

Previous history elicited information of an occasional attack of acute indigestion, supposedly due to errors in diet. Had felt better than usual for several days prior to attack. In this case there was no necessity for the use of the stomach tube, as there was an abundance of vomited matter after each test meal, and in which there was an entire absence of free HCl. After all acute symptoms had passed and patient was on her feet again, I made other tests at intervals of several days and found no HCl, but lactic and butyric acids in abundance, which led me to make a diagnosis of cancer. Otherwise, with the symptoms and history of the case, I should certainly have decided upon a round ulcer of the stomach and an acute gastritis.

Believing that a considerable hemorrhage from cancer of the stomach is evidence that the stage of successful surgical interference is past, I did not advise an operation. Patient continued to grow worse. Death ensued four months after first hemorrhage.

CASE 3.—Mary H., white female, age 31. This patient presented herself at clinic eight months ago with symptoms of chronic indigestion. Put her on pepsin after each meal, with no appreciable improvement. After three weeks began the administration of HCl. Patient reported decided improvement in all symptoms while continuing treatment, but almost immediate relapse as soon as HCl. was discontinued.

Tested gastric fluid at intervals of three days for two weeks and found absence of HCl in every instance. Potassium iodide was not perceptible in saliva until forty minutes after administration. Made diagnosis of cancer and advised operation, which was refused. Six weeks later patient had hemorrhage from an easily detected tumor near pyloric orifice.

Patient is rapidly growing worse, with all the symptoms of malignant cancer.

CASE 4.—A. K., white male, age 42, decorator. This patient came to me with almost all the subjective symptoms of gastric cancer. Pale, with decided cachexia. Lower limbs oedematous, glands enlarged, liver and spleen hardened, tongue pale and coated, stomach distended and tender. About ten months prior to consulting me gradually began losing appetite, weight and strength. Shortly after began vomiting food, together with mucous and streaks of blood. Recently, on examining vomited matter, had repeatedly found substance resembling coffee grounds. Had persistent cough, with engorgement of apex of left lung. Had been told he had cancer of the stomach by two physicians in New York city, who had advised him to come south upon advent of pulmonary trouble.

Analysis of stomach contents after test meals revealed abundance

of free HCl. Patient began having hemorrhages some weeks after, which continued at intervals of two to six days until death. An autopsy showed primary cause of death to be obstruction of portal circulation, due to cirrhosis of liver.

CASE 5.—J. B., white male, age 45, painter. This patient presented himself with a tympanitic and distended stomach. Tenderness and pain on pressure at a point just above umbilicus. Furred tongue, persistent nausea and vomiting. Had a hiccough that never ceased, not even as he claimed during sleep. Showed me a specimen of "coffee ground" vomit. Had muddy complexion, no subcutaneous fat, skin seemed almost like parchment. This train of symptoms had persisted for a year, growing constantly more severe. Had been advised to submit to surgical operation by two physicians for cancer of the stomach, and when he first came to office his appearance was such that I remarked to him that I considered he had made a grave mistake in not taking their advice. Several analyses of stomach contents were made, and in all found at least a trace of free HCl. However, potassium iodide was found in saliva eight minutes after administration.

I put patient on treatment for nervous anacidity and dilatation, and had the satisfaction, five weeks later, of seeing him at work in the railroad shops where he is employed.

These cases could be multiplied, but I consider they are sufficient to show the importance of chemical analysis in all gastric disorders where there is a difficulty in arriving at a diagnosis.

By this means we are enabled to make a diagnosis of cancer before metastasis has taken place. No surgeon can promise good results after characteristic cachexia, cedema of joints, enlargement of glands, "coffee grounds" vomit and palpation of tumor are plainly perceptible.

On the other hand, it will often suggest a correct diagnosis for those cases so closely simulating cancer, and without which we would be at a loss to determine their exact nature.

STRICTURE OF THE ŒSOPHAGUS.*

(RESULTING FROM POTASH).

By E. L. PATTERSON, M. D.,
Barnwell, S. C.

Inquiry into the use of this drug as a medicinal agent reveals the fact that it has many therapeutic applications among the laity.

It is said to be a sure cure for toothaches and is used in solution for the cure of ground itch and ulcers, also internally for various ailments of man and beast. As an escharotic it perhaps deserves a place in therapeutics. The most common use made of potash is by laundresses and scourers, and it is usually by this manner that its

* Read before the South Carolina Medical Association, April 14, 1897, Harris Lithia Springs.

results are so harmful, it being left about in strong solution and within easy reach of children who can barely creep. These little innocents become its victims, and often after excruciating suffering death comes to their relief.

The laws of our land have made no provision for the punishment of this class of offenders, and accruing disastrous results are termed accidental, instead of criminal carelessness. Potash is often used for deliberate criminal purpose, as our courts can testify. Its antidote is well known to be vinegar, and is generally promptly used. However, an escharotic so powerful could not fail to produce most disastrous consequences, even though neutralized at once, and we have as a result serious lesions of the mouth, throat, œsophagus and stomach. The contents of the stomach and the acid secretions it contains nullifies and dilutes the potash, so that the injury to this organ is not usually serious, causing, however, a gastritis, which subsides in a short time.

The treatment for this condition should be bismuth, carbolic acid and tr. opium in solution, and in suitable doses for the age of the patient.

The lesion which is the most serious does not demand our attention until the acute symptoms have subsided, when it is discovered that the child gradually becomes unable to swallow solid or semi-solid food.

We are now confronted with stricture of the œsophagus, resulting from cicatrix, and starvation threatens the little patient. Rectal alimentation should be resorted to at once. Nourishment should be given every three or four hours. One egg, three ounces of milk and half ounce of whisky, alternated with chicken broth, or beef peptonoids. Every effort should be made to improve the nutrition of the patient. Inunctions of cod liver oil may be employed to advantage. During this treatment it is of the utmost importance that there should be immediate and continued dilation of the œsophagus. The late Dr. Henry F. Campbell read a paper before the American Medical Association in 1888 in which he described a method of dilatation by means of the rat-tail bougie. This method has been employed successfully in a number of cases, introducing at each sitting a larger instrument until dilatation was sufficient. In some instances, however, this has failed, and the only alternative then became gastrostomy, or forcible dilatation. Now as gastrostomy and like operations were unsuccessful and heartily condemned, by so able an authority as Dr. Campbell, the preference lies with forcible dilatation by means of whalebone rat-tail bougie.

To summarize: Legislation should prevent the indiscriminate use of so dangerous a drug as potash, and if not practical to stop the use of it entirely, then to make it a criminal offense if permitted to be taken through accident or carelessness.

One is sure to be sustained in the assertion that more deaths occur from potash in the hands of the ignorant and careless than from

unknowledgeable dispensing by druggists, yet they (the druggists) lie within easy reach of the law.

Practically our method is this—early and continued dilatation with bougies of increasing dimensions, as soon as there is evidence of stricture of œsophagus. In the event of occlusion occurring, then one must forcibly dilate with whalebone bougie, sustaining patients in the meantime by rectal alimentation and inunctions of cod liver oil. As soon as it is possible to pass into the catheter, milk must be injected. For this purpose a syringe must be attached by means of a rubber tube to catheter. Even after dilatation is sufficient for patient to swallow liquid there may remain in some case a paralyzed condition of the œsophagus, in which event the person in charge should be instructed in the use of the catheter, and nourishment given in manner described.

A RATIONAL METHOD OF RELIEVING ASPHYXIA IN THE NEWLY-BORN INFANT. *

BY S. STRINGER, M. D.,
Brooksville, Fla.

I desire to call attention to a method of relieving asphyxiated newly-born infants, which I do not think has been presented to notice heretofore. I do not claim for this method, as is done by many others, that it is novel or unique, etc., but it is based entirely upon chemical and philosophic principles, and, like many other facts in our profession, is the result of accidental discovery.

We know that in the asphyxiated infant, unless the blood becomes oxygenated very soon, the child must die; we know that from several causes the sensorium has become so deadened or blunted as not to respond to the irritation of the atmospheric air, the application of cold water, or other methods of inducing respiration; yet foetal life still remains and would continue were it not that the placenta has become detached, and thereby respiration, or oxygenation of the blood through the medium of maternal circulation, is cut off.

Now, if we could maintain foetal life by any method until the sensorium can sufficiently recover to respond to the nervous excitants of respiration, we would, in many instances, save the life of the infant. How this is to be done is the object of this short essay, as well as to relate the circumstances which led to the discovery thereof.

A few years ago I was called to a multipara in labor, and was told she was only in her fourth or fifth month of pregnancy. In a few hours she was delivered of a foetus, which I took to be about the age indicated. The foetus, membranes and placenta were all delivered by the same effort. Nothing unusual having occurred, the foetus and envelopes were laid aside until my departure, when I had it placed

*Read before the Florida Medical Association, April 27, 1897, at Jacksonville.

in some cloths and rolled up to carry with me for the purpose of saving it as a specimen; but, it being late in the night, I deposited it until morning, when I proceeded to examine it, and, to my astonishment, found the foetal circulation still going on, with pulse at wrist very perceptible. This was several hours after birth. Here was a case of foetal circulation, to my mind, carried on by aeration of the blood through the medium of placenta exposed to the atmospheric air.

In contemplating this case it occurred to me that this information might be utilized in cases of asphyxia in newly-born infants, and I resolved to try the first case that came under my care.

Some time elapsed before a case offered to put in practice what I thought to be an important discovery. At last a case presented itself. A large and well developed child, of white parentage, and in which the head had been moulded into cylindrical form by a narrow pelvis. The child could not be induced, by the usual method of cold application and rolling, to make any effort at respiration. The circulation was still going on in the funis with some vigor, but the deepening of the dark hue of the surface plainly indicated that, unless oxygenation of the blood could take place, death would soon follow.

Already the pulsation in the cord had become feeble, and was becoming more so rapidly, when I delivered the placenta, rapidly cleansed it of clots, and exposed the maternal surface to the atmospheric air. In a very short time, the pulsation was perceptibly increasing in force; the livid and death-like hue was being displaced by one of life and health, when it required but a few moments for the restoration of sensibility, when the process of respiration commenced.

I feel sure that, had the placenta remained in the os uteri or vagina, excluded as it was from atmospheric air, death from asphyxia would certainly have occurred to the child.

Several subsequent cases have proven, to my mind, that this simple and rational plan of restoration is preferable to all others; and I will ask, Why not? Does not the blood become rapidly oxygenated when exposed to the air even in an open vessel? Have you not seen venous blood reddened in a few moments after exposure to atmospheric air? Then why not, when exposed to the air, by osmosis, through the irregular surface of the placenta, where aeration had been going on from the time of the earliest distinct organization of the embryo.

In nearly all cases of asphyxia the labor has been tedious, owing to narrow passage and time required to mould the head to the same, by the powerful expulsive effort which detaches the placenta and throws it into the os, or entirely into the vagina, as the child emerges from the third stage of labor. Therefore, you will find no difficulty in the immediate removal of the placenta, should you have a case of asphyxia.

After its removal from the vagina, it will be much easier to lift the cord from the neck, and examine for any interference with free

circulation in the cord, and correct the same. The placenta should be spread out with maternal surface cleansed of all clots and membrane, so that free access of air can be had. If it becomes necessary, on account of numerous clots, to use water to cleanse the maternal surface, it is advisable to have it warm, as it is remarkable how quickly the use of cold water will chill the child; yet it is but natural to expect such result when you apply cold to so large surface of the capillary circulation as is maintained in the maternal surface of the placenta.

So long as the circulation keeps on through the cord, you need not fear for the life of the child, for it is a continuance of foetal life *after birth*, and will keep the child alive for an indefinite time.

As soon as respiration occurs, which, in some instances, has been delayed as long as twenty-five minutes in some of my cases, the circulation is diverted from the placenta to the lungs, and pulsation in the cord ceases in a few seconds, when the child is to be separated from the placenta, as in ordinary cases.

I commend this method to the profession, and ask that it be tried where more cases present themselves than are met by provincial practitioners, when, I am convinced, it will be universally adopted.

I cannot omit, on this occasion, referring to the great advantages which, it seems to me, must result from the delivery of the placenta in cases of placenta prævia—advantages not only to the mother, but to the offspring. As the consideration of this subject would require considerable time, I will only give a few extracts from the literature on the forms of dystocia: Dr. Simpson has collated 120 cases in which the placenta was delivered anterior to birth of child. Of this number, thirty-one of the children were born alive, two were putrid, and eighty-seven still-born. I have no doubt but that a large per cent. of the eighty-seven still born died of asphyxia, in consequence of the retention of the placenta by the uterus for some time after its detachment. Had it been promptly delivered and exposed to atmospheric air, many of these lives would have been saved. But as these thoughts are not pertinent to this paper, I will leave the experiences presented for the thoughtful consideration of the profession.

[See Editor's Table for remarks on this paper.]—Eds.

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Georgia Journal of Medicine and Surgery.

EDITED BY

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PHYSICIANS' WANTS, ETC.—A department will be devoted to the free publication of subscribers' wants, practices for sale, change of location, etc.

SECRETARIES OF MEDICAL SOCIETIES will do us a favor by keeping us informed of dates of meetings of same, etc.

THE QUARANTINE QUESTION.

We note that our valued exchange, the *American Medico-Surgical Bulletin*, of April 25, has an editorial on this question which seems to us to contain some astonishing declarations. The writer of this states: "We might go on quarantining our ports forever and year after year have the same condition of danger threaten us;" "wooden ships lying in the harbor of Havana for a week or two come away with infected bilges and pantries;" "travellers who themselves may escape the disease, will, if exposed, carry away the infection in their garments." Dr. Klebs is cited as an authority on yellow fever. In an article in a late issue of the Journal of the American Medical Association "he shows that the disease is transported by sick people and not by merchandise; that it does not exist in the air; that its contagion though emanating from individuals must be deposited in their surroundings before it can infect other individuals;" he concludes "that the disinfection of the sick and their surroundings is fully sufficient to destroy the germs and check the disease." Dr. Klebs does not believe in quarantine. "Why yellow fever should create so panicky a feeling in the average American is a mystery. As a disease it is not as serious in the long run as consumption. Under very little care it soon dies out completely, never to occur again except by importation."

"If there was no quarantine there would be no panic." "If medical men did not lose their heads the public would not." "Contact with the sick, or with those who have been with the sick, does not give yellow fever." "No well informed sanitarian now believes that quarantine ever protects any community from imported disease." "Let us put ourselves on the same plain of intelligent action in this matter as our English and German cousins have done." "The innocent health officers of New Orleans had to suffer because they were not up to what the public had been led to expect of them."

We agree that quarantine in itself has no effect whatever on any infectious disease germ. A few or many days' detention makes no difference in their virulence. Wooden ships sail away from Havana with their bilges and pantries infected; travelers who have not had the disease, but have been exposed, carry away the infection in their garments, and Dr. Klebs says it is transported by sick people and not by merchandise. He does not state what kind of merchandise, or whether that merchandise may not be itself infected. Quarantine to us and to all scientific sanitarians means complete and thorough disinfection of ships and all material capable of conveying contagion, and a period of detention to cover the period of incubation of the disease for the people exposed to this suspected environment after complete and thorough disinfection of the infected place. Every introduction or importation of yellow fever or other infectious disease into any country where it does not exist is either through ignorance or lax or incomplete methods of sterilization, disinfection or purification, or where such is not attempted. Either this or it must be admitted that sterilization and disinfection are absolutely valueless, and yet Dr. Klebs says that disinfection of the sick and their surroundings is sufficient to destroy the germs and check the disease. We do not know how the sick can be disinfected, unless they are put in a furnace or boiler and exposed to 230°F. for a half hour or longer. Disinfection of the sick from any infectious disease is an utter impossibility, and detention of exposed persons to cover period of incubation with modern sterilization methods for goods, clothing and surroundings and change of water constitute quarantine, and Dr. Klebs advocates it, but why does he not believe in it? The writer states that it is not as serious in the long run as consumption. Fortunately the disease in latter years has gotten in so late that frost and cold have prevented it from having a very long run. Nothing else but cold, disinfection, cleanliness and quarantine has ever stopped its ravages, except in localities where every human is either dead or immune. Its ability to spread in this country is only checked by climate, by cleanliness, or for a lack of a fresh supply of non-immune human pabulum to feed upon, and scientific restrictions does check its course. **IF THERE WAS SCIENTIFIC QUARANTINE THERE WOULD BE NO PANIC.** This does not mean shotgun quarantine, or half-hearted methods. Medical men worthy of the name do not lose their heads, but often lose their

lives. The time to think of quarantine and act is when the ships are coming in bearing the infectious material with them. "The disinfection of the sick and their surroundings is sufficient to destroy the germs and check the disease." Dr. Klebs says the disease does not exist in the air, its cause does exist in the air of infected places or goods, and is borne through the medium of the air, but only for very short distances, and in no other way. Our intelligent German cousins let cholera into Hamburg in 1892. They may have become more intelligent since it cost them so many lives and so many millions to stamp it out. Our English relations are just finishing an awful epidemic of typhoid fever at Maidstone, for which the blame will be placed in time. We do not mean to say, however, that quarantine could have prevented this last. Latitude and conditions must of necessity be taken into consideration in discussing the yellow fever problem. Our measures should be directed to stamping out yellow fever in the country it comes from, and the infection from ships that bring it, and endeavoring at the same time to keep our seaport cities in the best possible sanitary condition. The very best way and the surest to give it no chance to develop here is to be more rigid, scientific and thorough in the disinfection, sterilization and detention of ships and of persons and baggage from infected ports. If the disease could be stamped out of Cuba, and we think it possible, it would greatly simplify the problem and mean much for the yellow fever zone of the States.

If the editorial had left out the word "innocent" in reference to the New Orleans health officers it would have been nearer correct.

THE NATURAL FOOD FOR INFANTS.

The season is now approaching when infant mortality is greatest from gastro-intestinal diseases, and it must be admitted that in most of these cases improper food and feeding methods are directly or indirectly the cause of the trouble. It is therefore plainly our duty to instruct those who place confidence in us as to what is proper food and how it should be given. It has been said that "the hand that rocks the cradle rules the world," but the author seemed to forget that the woman who gives milk and feeds it to her child and does less rocking can give pointers in ruling to her gentle competitor. Mother's milk, as every one who knows anything will admit, is the natural food and inheritance of every babe. Suppose the mother cannot secrete milk at all, or if she does, it is of such poor quality as to preclude properly nourishing her child, the next best thing is, therefore, some other woman who can secrete the necessary nutrition—in short, a wet nurse. In these days of the easily obtained substitutes, good enough perhaps in their place, we easily forget that artificial foods and feeding methods are of somewhat modern appearance, and that the good old way of simply letting the "organized

sucker" suck has pulled millions of them safely through the summer time.

The artificial feeding of infants reminds us something of Tom Cringle's observation of the bight of Benin "where few come out and many go in." It is a well known fact that for the cow to give the most abundant quantity of milk the udder must be thoroughly exhausted, "stripped" as it were at each milking. Dr. Budin's report, made last year to the Obstetrical Society of France, on The Production of Milk by Wet Nurses, is worthy of emulation. In the maternity ward Dr. Budin had fifty children, in addition to the fourteen children of as many wet nurses, and the question was how to make fourteen women give milk enough for these sixty-four children. He found that by suckling the infants thoroughly that the more the demand within reason the greater the amount became, without decrease in quality. This is in line with the fact that unless a cow is milked thoroughly the supply soon ceases. Where a mother's milk appears to be drying up the explanation sometimes seems to be in the fact that there is an over-supply for the one child and it does not empty the breast thoroughly, consequently the production begins to fail, and if instead of not giving enough for one child one or two other babies were nursed, the supply would be found adequate.

As to diet, what is best to preserve and increase the milk-producing capacity, somatose, tea, beer, or some other of the numerous foods and drinks which may be used for this purpose? As to beer, we have noticed that in comparison the number of women in Germany who give milk and nurse their babies is not as large as it might be, and it is almost a universal custom for them to drink beer in moderation. Our preference to this end is for milk and eggs and plenty of them. We knew of a record-breaking milk and butter Jersey cow that was fed for the trial the milk of six other cows kept for the purpose. This cow's record has never been surpassed. To secure good milk the mother must of course have a good constitution, take the necessary exercise, and be free from mental strain or worry, and have good environment. Excessive proteids or fats in the mother's milk does sometimes produce intestinal symptoms in the child. This may be corrected by diminishing the nitrogenous foods in the mother's diet; the proteids may be reduced by exercise.

A very valuable point in the prevention of gastro-intestinal complaints of breast-fed children is to keep the nipples and breasts thoroughly sweet and clean. The milk drippings or oozing finds lodgment in the rugæ of the nipples and furnish a soil for bacteria and a medium for tyro toxicon to enter the child's organism. This we think is the real explanation of those cases where anger or sorrow on the part of the mother is supposed to produce through the milk untoward effects upon the child.

Just at this time, when so many tender feet have volunteered for active service in the field, the question of hardening the feet is a

very important one, and has more to do with defeating the enemy than one who has not experienced this painful situation would suppose. We have found that bathing the members in a dilute solution of Muller's fluid several times a week or oftener has a most happy effect. The composition of this fluid, which can be readily transported in the solids, is bichromate of potassium 2 to $2\frac{1}{2}$ parts, sulphate of sodium 1 part, water enough to make 100 parts. Use diluted sufficiently with more water. We have found by experiment also that a one or two per cent. solution of formaldehyde or formalin in water is to be recommended.

EDITOR'S TABLE.

Does locomotor ataxia occur in the negro? Dr. C. S. Briggs stated some time ago in the *Atlanta Medical and Surgical Journal* that he had never seen a case in the negro. His experience has covered more than a decade. We know our readers can throw some light on this question. Please let us hear from you.

* *

The Moscow physicians boast of a medical society established in 1804, but the Medical Society of Maryland was in existence in 1798. —*Clinique* (Montreal), April, 1898.

There is in this city (Savannah, Ga.,) a medical society, The Georgia Medical Society, which was also established in the same year (1804) as the Moscow Society, but we hope the Moscow physicians have seen fit to revise their by-laws from time to time to keep pace with the progress of the profession, something unknown of in the history of the Georgia Medical Society.

* *

We beg to acknowledge with thanks the receipt of a reprint of the valuable and interesting article on the Prevention of Yellow Fever and the Quarantining of Houses to Stamp it Out, by Stanford E. Chaillé, M. D., Professor of Hygiene, &c., Medical Department Tulane University, New Orleans, La. Reprint from *New Orleans Medical and Surgical Journal*, May, 1898.

This is a timely, scientific and well-written article, and we heartily agree with the able author in all he says. Physicians of the South should secure it and read the article.

* *

ARE YOU GOING TO CUBA?—If so, the *Alkaloidal Clinic* offers the following very timely suggestions: "The pernicious effects of tropical climates are very much exaggerated. There are but few rules to be observed by strangers and they are not difficult. The diet should be mostly fruits and vegetables, and meats and alcoholic drinks are harmful; it is the latter more than the climate that cause 'tropical liver.' Follow the natives' plan of taking but little exercise in the sunshine. Avoid water that has not been boiled or distilled.

Keep in at night and sleep well away from the ground. Excesses of all kinds are harmful. Great stress is laid upon the danger that lies in the dark eyes of the mantilla-clad senorita. 'Shun her as you would any other pestilence.'"

The pernicious effects of the micro-organisms of the low-lying tropical climates are none too much exaggerated. It is a well-known fact that animals, such as the horse, and man foreign to such climatic influences suffer more or less while undergoing that process with which we at the south are familiar, and which is ordinarily called acclimatization. That influence known as malaria abounds in all tropical low-lying places, and acclimatization is the effort of the organism to hold its own against the ravages and inroads made upon it by the life cycle of the hæmatozoon of malaria circulating in the blood, with its many clinical manifestations.

The following figures taken from the report of our friend and collaborator, Dr. W. F. Brunner, U. S. M. H. S., formerly stationed at Havana, shows the total mortality of the Spanish army in Cuba for the year 1897, and are approximately correct:

Yellow fever.....	6,034
Enteric fever.....	2,500
Enteritis and dysentery	12,000
Malarial fevers.....	7,000
All other diseases.....	5,000

Deaths from all diseases 32,534

To the above enormous death-rate must be added at least ten per cent. of the 30,000 soldiers invalided home in the last stage of the different diseases enumerated above during the year.

Tropical climates are healthy enough, if the causes of such diseases can be removed or abated by modern sanitary knowledge and its rigid application. "Sleep well away from the ground" and the senorita, advice easily given to a soldier, but "a custom more honored in the breach than the observance."

* *

THE SERUM TREATMENT OF PNEUMONIA.—We publish on page — a paper by Dr. Antonio Fanoni on the new treatment of pneumonia with DeRenzi's antipneumonic serum. Prof. Pane reports in *British Medical Journal*, April 16th, nine cases of pneumonia treated with antipneumonic serum during a recent epidemic of pneumonia in Naples which was of a grave type. The quantity of serum used varied from ten to a hundred and ten cubic centimetres. Death occurred in one case, but here the treatment was not adopted until the fifth day of the disease, and then the serum was used only in small quantities (ten cubic centimetres). In all the other cases the effect of serum treatment was decidedly good, inducing rapid improvement of the symptoms. No intolerance or ill effects were observed. Since there is little hope if the pneumococcus enters the blood, and since this probably does not happen before the third or

fourth day, if good results are to be expected from the administration of serum, it must evidently be used in the early stages of the disease to be of avail; moreover, at this time a smaller quantity of serum will suffice. As an average dose the author recommends twenty cubic centimetres per diem.

This discovery will be gladly received. We only hope it will prove to be as valuable an agent in treating pneumonia as the antidiphtheretic serum is in the treatment of diphtheria, but as pneumonia may further be due to the micrococcus lanceolatus, bacillus lanceolatus, bacillus capsulatus or micrococcus tetragenous, it would seem to us useless to use antipneumococcus serum in a case due to any of the above organisms.

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* *

STRINGER'S METHOD OF RELIEVING ASPHYXIA IN THE NEWLY BORN.—We wish to call the attention of our readers and the profession everywhere to the article by Dr. S. Stringer, Brooksville, Florida, entitled "A Rational Method of Relieving Asphyxia in the Newly Born Infant." This is a most valuable discovery, and it cannot but be noted how modestly the author and discoverer puts forth his claims. We dare say that if this same thing had been found out by some Russian, German or Frenchman, our medical journals to-day would have fallen over one another to get the article, and he would have gone down into the text books as famous, and Dr. So-and-so's (of Moscow, Berlin or Paris,) method of relieving asphyxia would have become quite *au fait* and proverbial. We demand the same for our talented and worthy contributor. Let us hear of "Stringer's Method of Relieving Asphyxia."

*
* *

In this issue Dr. Will F. Arnold, P. A. Surgeon U. S. Navy, Nashville, Tenn., now aboard U. S. S. Resolute bound for Key West, contributes the timely and valuable translation, "Charred Straw in Surgery." Aside from its great value in military and naval surgery, it is a distinct advance in surgical dressing, and offers to the practitioner and surgeon everywhere something that can be always procured and where cost is a small consideration, and it gives better results than dressings now usually used.

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* *

The July issue will contain the following original articles:

A Plea for Conservatism in the Treatment of Abortion, by R. L. Payne, M. D., Norfolk, Va.

Prevention and Control of Yellow Fever Epidemics, by H. M. Folks, M. D., Biloxi, Miss.

Puerperal Eclampsia and its Probable Causation, by Jos. J. Griffith, M. D., Danielsville, Ga.

Medical Treatment of Innominate Anurysm, by R. P. Izlar, M. D., Waycross, Ga.

The Under Side of Things in a Doctor's Life, by Hubert A. Royster, A. B., M. D., Raleigh, N. C.

The Hygiene of the Skin in Health and Disease, by J. C. Woodruff, M. D., Charleston, S. C.

This will be the first number of Vol. III. Let your subscription begin with this number. \$2.00 per year for the representative monthly medical journal of the South. Subscribe now.

* *

At each annual mile post in one's life journey it is well to pause and consider, to look back over the past and note the hindrances to our easy progress, whether we have met them and overcame them as we should. There is no class of men to whom this applies more aptly than to physicians; none have to face more trying difficulties and disappointments, and to grapple with so many sudden conditions requiring cool judgment and courage.

With this issue of the JOURNAL Vol. II ends, and with the July issue Vol. III, No. 1, begins, and in keeping with the spirit of progress that has characterized our past, we will institute new improvements as occasion and progress demand. The first will be that of Department Editors for the various branches of medical science. The Progress of Medical Science will be divided into sections, viz: Medicine, Surgery, Therapeutics, Gynæcology and Obstetrics, Railroad Surgery, Pediatrics, Histology, Pathology and Bacteriology. These branches of medicine will be under the charge of prominent southern physicians. These gentlemen will make abstracts of original articles pertaining to their respective departments and will follow the abstract with comments of approval or criticism, as the merits of the paper demand. We believe our readers will appreciate this move as an evidence of our desire to give them the best journal published in the South.

* *

ATLANTA COLLEGE OF PHYSICIANS AND SURGEONS.—The faculty of the new medical college formed by the union of the Southern and Atlanta Medical Colleges have elected the following officers: A. W. Calhoun, M. D., LL.D., President; W. S. Kendrick, M. D., Dean of the Faculty, and the Faculty is now composed of the following eminent physicians:

Dr. A. W. Calhoun, professor of diseases of the eye, nose and throat.

Dr. W. S. Kendrick, professor of principles and practice of medicine.

Dr. Hunter P. Cooper, anatomy and clinical surgery.

Dr. W. P. Nicolson, anatomy and clinical surgery.

Dr. W. F. Westmoreland, principles and practice of surgery.

Dr. W. S. Elkin, operative and clinical surgery.

Dr. F. W. McRae, gastro-intestinal and rectal surgery.

Dr. V. O. Harden, obstetrics and gynæcology.

Dr. J. G. Earnest, diseases of children and lecturer on clinical gynæcology.

Dr. J. S. Todd, materia medica.

Dr. Louis H. Jones, chemistry.

Dr. Dunbar Roy, clinical professor of diseases of the eye, nose and throat.

Dr. F. S. Bourns, bacteriology and pathology.

Dr. J. Clarence Johnson, physiology.

The first session of the new school will open on Oct. 1st.

The dental department of the Southern medical and the pharmaceutical department of the Atlanta Medical will bear the same relation to the new institution as each did to the old colleges.

We are glad to see these two colleges unite their forces and faculties. The new school will now offer superior advantages to the young men of the South, and Atlanta can now show a college to compare with any of the northern schools.

BOOK REVIEWS.

The Diseases of the Stomach, by William W. Van Valzah, Professor of General Medicine and Diseases of the Digestive System in the New York Polyclinic Medical School and Hospital, and J. Douglas Nisbet, A. M., M. D., Adjunct Professor of General Medicine and Diseases of the Digestive System in the New York Polyclinic Medical School and Hospital. Illustrated. Philadelphia: W. B. Saunders, 1898. \$3.50 net.

This book will be found an eminently practical one, and covers the subject upon which it was written in a thorough and masterly manner from every standpoint, making it a valuable contribution to scientific medicine.

The methods of examination given and the apparatus recommended, while sufficient for special advanced stomach work, are not too elaborate and complicated for the general practitioner. Indeed, the needs of the practicing physician are kept constantly in mind throughout the book.

In marked contrast to other books on the stomach the subject of treatment is presented in such a way as to leave no doubt in the reader's mind what course to pursue in a given case. Although numerous authorities are cited, the authors are perfectly clear as to what their experience has found most useful, and they do not hesitate to recommend a definite course of procedure under definite conditions.

Among errors to be cited in other books the authors state is the mistaking of a condition for a disease, and describing, as so many authors do, the dynamic affections of the stomach as neurosis.

The book is divided into six sections, the first of which is introductory; the second treats of diagnosis and diagnostic methods. The third section is devoted to medication and therapeutic methods, diet, hygiene and physical remedies, symptomatic, physiological, bacteriological and chemical treatment. Section four describes and differ-

entiate the dynamic affections, and section five the anatomical diseases. Section six treats of the vicious circles of the stomach, describing its influence on the different organs and tissues of the body; the secondary diseases of the stomach produced by pathological change in other portions of the organism.

On page 271, in discussing parorexia, says, "non-alimentary, injurious and even disgusting articles may be eaten." "This form is commonly among the little plantation negroes of the South—the so-called 'dirt eaters,' and seems to be more prevalent in the spring and in malarial regions." The authors evidently refer here to the clay eaters of north central Georgia, who are adult whites and not negroes. The habit of dirt eating with children is more common among whites than negroes. "It is a popular belief that 'dirt eating' is a sign of intestinal worms and the association often exists." We have always looked upon it as the natural craving of the system for needed iron, as such persons are always anæmic and iron properly supplied stops this perverted appetite. It may readily be seen how malaria by destroying the red corpuscles brings about such a condition.

There is an unusually complete and detailed presentation of the important subject of dietetics. The nutritive value of the various foods is fully discussed, together with their special application in diseased conditions of the stomach. The diet lists for each disease are extremely full, and are so arranged that selections can readily be made to suit individual cases.

The publishers have spared no pains or expense to make it an attractive volume. The index is especially full and complete, and the work we think will prove the most practical one on the subject.

The International Medical Annual and Practitioner's Index.

A Work of Reference for Medical Practitioners. Sixteenth Year.
New York and Chicago: E. B. Treat & Co., 1898. Pp. x-740.
Price \$3.

The high standard and value of this excellent resumé of the year's progress in medical knowledge is so well known that we scarcely need say more than that it is ready for distribution. The articles on malaria and hæmaturia are of special interest to southern practitioners. A review of this issue, which is in all respects similar to those of the past, cannot be well attempted, nor is it necessary—the value of the work speaks for itself. To those of our readers who are not familiar with it, we cordially recommend it. As a book for reference and a guide for diagnosis and treatment too much cannot be said in its favor.

The death of Theophilus Parvin removes from the list of editors one whose contributions on gynæcology added so much to the value of the book.

The "Atlas of the Bacteria Pathogenic in the Human Subject" is a timely addition to this issue. The plates are beautiful and the bacteriological technique is well explained.

The publishers have done all that is possible to make and keep the annual attractive.

A Manual of Instruction in the Principles of Prompt Aid to the Injured. Including a Chapter on Hygiene and the Drill Regulations of the Hospital Corps, U. S. A. Designed for Military and Civil Use. B. Alvah H. Doty, M. D., Major and Surgeon Ninth Regiment N. G. S. N. Y., late Attending Surgeon to Bellevue Hospital Dispensary, New York. Second Edition. Revised and Enlarged. New York: D. Appleton & Co., 1895.

Just at this time this little book is particularly *apropos*, and we know of no other work so condensed that can take its place. It should be in the hands of the hospital corps of the volunteer service, besides that of the regular army, and physicians, especially those removed from surgical supply houses, will find in it much of practical value.

Samantha at Saratoga, in a New Dress.

One of the funniest of all the funny books is certainly "Samantha at Saratoga." Will Carleton pronounces it "delicious humor," and Bishop Newman says it is "bitterest satire, coated with the sweetest of exhilarating fun." Formerly published by subscription at the price of \$2.50, and sold, it is said, by the hundred thousand, it has recently been issued in an exquisite little cloth-bound volume in the "Cambridge Classics" series by the celebrated cheap book publishers, Hurst & Co., of New York, as a means of widely advertising that series, and is sold at the fabulously low price of 25 cents. It would seem strange if they should not sell a million of them. They are sold by booksellers, or the publishers direct.

PROGRESS

—OF—

MEDICAL SCIENCE.

MEDICINE.

THE NEW TREATMENT OF PNEUMONIA WITH DE RENZI'S ANTIPNEUMOCOCIC SERUM.—Dr. Antonio Fanoni, in *N. Y. Med. Journal* May 7th, says those who are interested in the recent applications of "serum therapy" will be pleased to learn of the recent discovery made by Professor de Renzi and Professor Pane, of the Royal University of Naples, of a serum for curing pneumonia.

The names of the two illustrious professors attest the genuineness of the discovery, but because of the frequent false impressions in regard to several so-called discoveries in medical science of late years, the accounts may have been accepted with a certain amount of incredulity.

Nevertheless, it is true that an antipneumonic serum has been discovered, and scientific Italian reviews recently published give us such particulars about it that, in the interests of science and of patients, he thinks it useful to submit them to the most serious consideration of physicians and of the public.

Before entering more fully into the details of the discovery of this antipneumonic serum, as related in the *Gazetta degli ospedali e delle cliniche*, Naples, February 13, 1898, it is necessary to state first that pneumonia is caused by the *Bacillus lanceolatus*, which was discovered by Frankel. This micro-organism is usually found in the mouth and in the breathing passages of healthy subjects, but sometimes it loses its innocuousness and causes the disease. The reason of this is still unknown.

Some scientists believe that the bacillus, in the ordinary conditions of its life, does not possess sufficient toxic power to cause the disease; others, including Professor de Renzi, believe that the bacillus, in the normal condition of the human subject, cannot pass certain limits; that in other conditions, such as those determined by traumatisms and infectious and contagious diseases, it passes these limits, and so becomes an active agent in the causation of pneumonia. Therefore, its presence in the mouths of healthy subjects and the possibility of its penetrating the human body warrant preventive treatment. This naturally consists in the disinfection of the mouth, which should be practiced by every one, especially by those who have suffered with pneumonia. For this purpose Professor de Renzi recommends a solution of corrosive sublimate in the proportion of 1 in 5,000, or a solution of fifteen grains of salicylic acid in fifteen ounces of water.

After the disease has developed, direct treatment becomes necessary, and the two following very important rules from a hygienic point of view are indicated: 1. Keep the air of the sick room pure by keeping a window open day and night, as it is injurious for the patient to breathe air that has become vitiated. 2. The patient should be properly nourished. Although the fever has diminished the digestive power, the organism needs repairing, and the strength should be maintained as much as possible. Therefore, it is well to administer daily a pint and a half or two pints of milk, some eggs and a little broth.

Regarding the treatment of pneumonia, up to the present time every physician had his own specialty. In the clinics of Naples ethylic alcohol was successfully used, but after the discovery of Frankel's bacillus it was found that the alcohol had no power to kill that micro-organism.

Since then several scientists have made experimental researches regarding an antipneumonic serum, notably Klemperer, Emmerich, Fawitzki and Behring, in Germany, and Foa, Carbone, Bonome, Belfanti and others in Italy. But the serum obtained by them was so weak, and could be obtained only in such small quantities, that it was not sufficient for the purpose. The merit of obtaining a powerful serum in sufficiently large quantities to be used in the clinics belongs to Professor de Renzi and Professor Pane, of the Royal University of Naples.

There is not to-day a prominent physician who can afford to ignore the results of the serum treatment. The most skeptical, in the presence of facts, are obliged to admit the admirable curative power of Behring's serum in diphtheria, of Maragliano's in consumption, and of Sanarelli's in yellow fever. Those who do not believe in serum therapy at the present time do not understand it.

For the laity it is sufficient to state that curative serum is not obtained from animals which have a natural immunity against the specific disease to be cured, but from animals whose immunity has been artificially produced.

Professor Pane inoculated various animals with pneumonia bacillus and from them he obtained large quantities of a powerful serum.

After a great number of experiments he submitted the serum to the Medical and Surgical Academy of Naples to be tested. Professor Armani, Professor de Giaxa and Professor Boccardi were selected by the academy to report upon it. After severe tests they found that the serum gave even better results than those modestly claimed for it by Professor Pane. Afterward, experiments on men were undertaken to establish the absolute innocuousness of the serum. Two hundred cubic centimetres of the serum were injected in some cases in twenty-four hours without any inconvenience.

In the year 1894 to 1895 two patients suffering from pneumonia were admitted to Professor de Renzi's clinic and were treated with the serum with excellent results. In the year 1895 to 1896 fourteen

patients were treated with the serum, and only two died. In the year 1896 to 1897 this treatment was again used in fourteen patients, and only one died. This year two patients have been subjected to the serum treatment and cured. In all there were thirty-two patients treated with this serum, twenty-nine of whom were cured and only three died. Regarding the latter, the autopsy made by Professor Schron revealed the fact that these patients had other diseases of a fatal nature, and they could probably have been saved if they had been brought to the clinic at an earlier date.

This serum treatment increases the strength and rapidly diminishes the fever to such an extent that, in one case which came under Professor Rossoni's observation, there was no fever observed on the third day.

Professor Maragliano experimented with de Renzi's antipneumonic serum upon five patients and with successful results. He also wrote to him, in answer to a request for his opinion about deRenzi's serum, that the results of the experiments showed the real influence of the serum on the course of the disease.

The doctor believes that de Renzi's serum may be considered as a remedy of undoubted efficacy, and that it is manifestly indicated in all diseases caused by Frankel's bacillus—namely, epidemic cerebro-spinal meningitis, pleurisy, pericarditis, peritonitis, the arthritis of pneumonia, etc.

The doctor has been so much encouraged by the results of the experiments made by the most prominent physicians of Italy that he tested the serum in the case of a lady who suffered from a grave form of pneumonia in the inferior lobe of the left lung. Her temperature was 104° F., and there were dyspnoea and delirium on the fourth day after the onset of the disease. Two injections a day, of ten cubic centimetres each, were given until seventy cubic centimetres in all had been administered. A few hours after the first injection the patient began to feel a little relief; the fever gradually diminished, and on the ninth day entirely disappeared. From the first injection the disease became modified little by little and lost its most serious symptoms, the patient convalescing rapidly.

DON'TS FOR THE TREATMENT OF PNEUMONIA.—Thomas J. Mays, M. D., writing in the *Philadelphia Polyclinic*, says:

Don't believe that acute pneumonia is a self-limited disease and will get along as well without treatment as with it.

Don't hug the delusion that fever in any degree is a benefit to the patient.

Don't fancy that you can always tell croupous from catarrhal pneumonia.

Don't allow pain in the abdomen to draw your attention away from the chest. Frequently the beginning of pneumonia is accompanied by severe pain in the right groin, which may lead one to suspect the onset of typhoid fever.

Don't direct your treatment more towards the heart than towards the lungs.

Don't fail to recognize the great influence of the brain and nervous system.

Don't lose sight of the serious indication of rapid and laborious breathing.

Don't be afraid of applying ice to the chest in rubber bags. It will do no harm.

Don't fail to apply as many bags as are necessary to cover the area of inflammation.

Don't think that you can get as good results from a tub-bath, or from cold general spongings, as you can from the local application of ice.

Don't become alarmed when the ice produces a sudden drop in the temperature, and think the patient is going into collapse.

Don't fail to retain the ice so long as fever is present, and resolution has not taken place.

Don't omit to apply one or two ice bags to the head.

Don't overlook the beneficial influence of strychnin in combating pneumonia. Administer 1-20 of a grain by the mouth every three or four hours, and besides give the same dose hypodermically once or twice a day, until the system becomes irritable.

Don't omit the hypodermic injection of $\frac{1}{4}$ grain of morphin once or twice a day to secure rest and sleep.

Don't fail to administer oxygen by inhalation more or less constantly if the patient is cyanotic or short of breath.

Don't fail to bleed if cyanosis and dyspnea are not relieved by oxygen inhalation.

Don't lose sight of the great value of tincture of capsicum in relieving great nervous depression, delirium, dry black coated tongue, picking at the bedclothes, etc. Give it from a half to one teaspoonful doses in water every two or three hours, or oftener, in alcoholic pneumonia.

Don't fail to give sodium salicylate, ammonium acetate, potassium acetate, and potassium citrate, three grains of each, in a dessert-spoonful of peppermint water, every three or four hours, if there is the least evidence of a rheumatic complication.

Don't overlook the important action of quinin in this disease.

Don't fail to support the patient with an abundance of nourishing food, such as milk, freshly expressed beef-juice, etc.

COCAINE POISONING. — Symptoms. — A robust man, aged 40, took, by mistake, two hours after dinner, 10 grains of cocaine muriate along with an equal quantity of ammonium bromide. Within five minutes he expressed himself as feeling wonderfully well; half an hour later he felt "very funny," and complained that hands and feet were numb and that he seemed to be walking on cotton-wool. This was followed by spasmodic jerking of the limbs, preceded by a

sense of restraint. His jaw troubled him by "rattling" and his mouth appeared dry—in reality, it was anaesthetized. The eyeballs were notably protuberant and perfectly immobile, evidently from paralysis of the motor oculi muscles.

The levatores palpebrarum were unaffected; pupils fixed in the state of semi-dilation; facial expression very haggard. While in this state 3 drachms of wine of ipecac were given with warm water, which caused emesis. About forty minutes after the poison was ingested, speech became quick and hurried; the breathing very oppressed—the oppression being principally on expiration—and gradually increased until the rate sank to about 8 per minute; but there was no cyanosis, possibly from the fact that the pulse had increased in rapidity to 120 per minute and was full and bounding.

Treatment: As the breathing became worse, 1-10 grain of strychnine and 1-100 grain of digitaline were given hypodermically. The effect was immediate: the respiration was relieved, though the pulse-rate remained as before; and from this time the danger seemed less imminent. The breathing, at times, became labored, but never again to the extent it had reached prior to the administration of the antidote. The subsequent history of the case was one of gradual improvement, aided, doubtless, by cupfuls of strong, hot coffee, which was comforting and seemed to stimulate the respiratory apparatus. About two hours after ingestion of the cocaine the patient again commenced to vomit and passed large quantities of urine, but whether from the poison or from the treatment could not be determined. Urination was performed without difficulty, but there seemed to be an inappreciation of relief natural to the removal of the tension of a full bladder. Perspiration throughout was very free. The knee-jerks were not absent, but appeared defective. The total duration of the symptoms was about seven or eight hours. The next day the patient, though languid, was able to resume his occupation.

It would seem, from this case, that cocaine is, in a measure, selective: first, the nerves of the motor oculi muscles were affected; secondly the vagus; and lastly the nerves to the mucous surfaces and the skin.

Is it not possible that instillation of cocaine into the eye may be of value in those troublesome cases of idiopathic nystagmus that are met in general practice?—*Palmer in London Lancet, March 12, 1898.*

THERAPEUTICS.

THE PREVENTION OF CINCHONISM.—In a number of issues of the *Therapeutic Gazette* within the last few years we have referred to the untoward effects produced by various drugs, and have called attention in particular to the disagreeable after-effects which often ensue when quinine is administered. With the more moderate of these effects nearly every one is familiar, for the laity often prescribe

quinine for themselves in such large doses that they speedily experience the tinnitus, or deafness and headache, which full doses of this drug so readily produce. There are two ways in which these disagreeable symptoms may, to a certain extent, be modified by combining with the quinine other remedies. The oldest way, and the method which is perhaps resorted to most frequently, is the administration with each dose of quinine of five or ten grains of bromide of potassium or bromide of sodium, which seem, to a considerable extent, to modify the aural symptoms which we have mentioned. If the dose has been a very large one and the patient is particularly susceptible to quinine, it may be well to give at the same time with the quinine a little fluid extract of ergot for its tonic effect upon the cerebral and meningeal blood-vessels. Another method for the prevention of cinchonism is that which has been suggested by Aubert within the last few months. He asserts that the administration of atropine in the dose of 1-250 to 1-150 of a grain with each dose of quinine greatly modified the symptoms and in those where quinine was given for the relief of the neuralgia aided the quinine very materially in relieving the pain. It must be remembered, on the other hand, that in those who have a susceptibility to atropine, the dryness of the mouth and throat and the disordered vision which may ensue after this dose of the drug might prove more uncomfortable to the patient than if the quinine had been administered alone. *Ed. Therapeutic Gazette.*

TO DISGUISE A BITTER DRUG.—A plant grows in Assam, the botanical name of which is *Gymnema Sylvestre*, which has the peculiar property, when chewed, of temporarily neutralizing the sense of taste as regards sweet and bitter things, while that for sour and saline substance remains unaltered. The Hindus claim that the plant is an antidote to snake bite. However that may be, it is believed that the plant might be advantageously introduced in our pharmacopœia as a means of disguising the bitterness of quinine and other disagreeable medicines.—*Dunghlison's College and Clinical Record*, January, 1898.

MALARIAL HEMATURIA.—Give sodium hyposulphite in one-dram doses every two hours until the patient is thoroughly purged; then continue in smaller doses, until the system is saturated with it.

Give morphin and atropin, hypodermically, sufficiently to quiet stomach; also blister epigastrium if necessary.

Give an abundance of water to wash the coagula that must necessarily accumulate in the urinary tubules after a hemorrhage; hot water or hot lemonade is frequently better borne by the stomach, than cold; cupping over the loins is also to be recommended.

The diet should be mild. Fresh buttermilk is usually well borne by the stomach, and is also a mild diuretic, and I have come to rely on it as an article of diet in these cases as in many other diseases.

Keep the patient in a strictly recumbent posture.

I give sodium hyposulphite because it is a stimulant to the hepatic secretion, causing in large doses abundant biliary secretion, and is also a valuable intestinal antiseptic. I believe free sulphurous acid is disengaged in the blood, and that this agent is an anti-zymotic to such an extent that it destroys the micro-organism which is the real cause of the disease, and thus arrests the process of corpuscular disintegration. — *M., in N. O. Medical and Surgical Journal.*

DIET IN CATARRH OF THE STOMACH. — First: Milk, cold or warm; bouillon; beef-tea prepared cold. To one pound of beef, cut up in pieces the size of dice, add twenty ounces of distilled water and ten drops of dilute hydrochloric acid. Let stand in refrigerator twenty-four hours; strain and season to taste, and, if desired, warm, but not enough to make cloudy.

Peptonised milk; zwiebach not sweetened, biscuits, rusk, toast; natural Seltzer and Vichy waters, carbonic water.

2. Soft boiled or raw eggs; rice or sago boiled soft in milk; clear soups; purée of potato; vermicelli or "noodle" soups; raw oysters.

Boiled, roasted, stewed or broiled calves' brains, sweetbreads, pigeons, chickens.

No vegetables except those mentioned to be allowed with soups.

No "wheaten grits," hominy, barley, oatmeal.

3. "Minced" or finely-cut boiled ham and rare beefsteak.

Coffee and tea. Articles under 1 and 2 as advised.

4. Rare roasted beef and veal, especially cold; roasted chickens, and pigeons without sauces, especially cold; venison; partridges, woodcock and snipe, not too fresh; boiled fish, white bread (stale), macaroni, baked apples, fruit jellies; a very small amount of butter, otherwise no fats at any time; only dry wine; no beer, no ale or porter.

Rye whisky or brandy, diluted with waters mentioned, may be used with luncheon and dinner when pronounced necessities.

In using forceps, ether is distinctly to be preferred as an anæsthetic; here the obstetrician desires to further uterine contraction in every way. The delivery of the patient is often prolonged, and if chloroform is given to complete anæsthesia the uterus will often relax and the obstetrician will push the child's head away from the brim of the pelvis in his efforts to apply the forceps. This is especially true in cases in which the high application of the forceps must be practiced.—Edward P. Davis.

MALARIA IN CHILDREN.—

R Tr. eucalypt. globul.....	8 parts.
Spt. vini diluti.....	8 "
Quininæ muriat.....	2 "
Chinoidini	1.25-2 "
Acid. muriat. dil.....	q.s. ad solutio.

M. S. Gtt. xx.-xl. five times daily.

—Zukermann.

TAPE WORM.—One drop of croton oil dissolved in thirty drops of chloroform and one ounce of glycerine, given at night, on an empty stomach, followed in the morning by sufficient castor oil to purge well, will remove tape-worm.—*Medical Summary.*

TO CLEAN RUSTY INSTRUMENTS.—Fill a suitable vessel with saturated solution of stannous chloride (chloride of tin) in distilled water. Immerse the rusty instruments and let them remain overnight. Rub dry with chamois after rinsing in running water, and they will be of a bright silvery whiteness.—Brodie, *Journal of the British Dental Association.*

GENERAL SURGERY.

MORTALITY AND TREATMENT OF ACUTE INTUSSUSCEPTION.—From a compilation of two hundred and thirty-nine cases of acute intussusception and a study of the methods of treatment employed, Gibson (*Medical Record*, July 17, 1897) deduces the following as the best method of treatment:

Of the symptoms nothing of much importance that is new was discovered; the most constant symptom, and one that must be considered pathognomonic when present in a child and accompanied by abdominal symptoms, is a bloody discharge from the rectum. Its absence is not, however, to be taken as evidence that intussusception does not exist. The infrequency of fecal vomiting is also noted. In general, palpation of the abdomen yields definite signs of greater value than in other forms of acute intestinal obstruction. A clearly defined tumor may, in many cases, be recognized.

The total mortality for 140 cases operated upon with antiseptic precautions is 53 per cent. The first and second days show a mortality-rate inferior to the general mortality, while the four succeeding days show a steadily increasing mortality, in each instance greater than the average. After the first week the cases merge into the subacute variety. The mortality was more than double in cases where the intussusception was irreducible, as compared with cases in which reduction was possible. The age of the patient does not apparently play so marked a rôle in regard to mortality as has been supposed, as the author finds only a 4 per cent. difference between the different classes. The author believes that the mortality is due not so much to the tender age of the majority of the patients as to the condition, also that this latter circumstance should prevent us from being skeptical of the possibility of improving our results, and lead us to discard the prevalent belief that we are dealing mainly with a class of patients whose age alone will preclude a favorable result. The author believes that an improvement in our methods of dealing with intussusception will result in decreasing the mortality. To accomplish this result we must operate at the earliest moment, and that means refraining from wasting time in attempts at reduction

by inflation per rectum, except in a very limited number of cases, and such an attempt to be made only with the determination to resort to abdominal section immediately if such inflation does not at once accomplish its purpose.

In regard to treatment, the author believes that a single attempt may be made in the first twenty-four hours to reduce the intussusception by a high injection. If the condition is one of very great intensity of symptoms, it will perhaps be wisest to refrain from making such an attempt, for the reason that even on the first day reduction alone will not be sufficient treatment for the existing pathological conditions. In the second twenty-four hours, while a certain proportion of cases will yield to mechanical treatment, its usefulness becomes still more restricted, as exemplified by twenty-eight cases occurring on second day, when in four instances other procedures than reduction were found necessary.

After the second day the author believes that the possibility of relief is so small and the probability of doing harm so great that a preliminary trial of the enemata should be omitted. A small percentage of cases, which may be called the sub-acute variety, may in the latter days, say in the second week, offer conditions which might justify a preliminary trial of distention, where the symptoms point to a lack of severity in the local conditions, showing neither shock nor sepsis.

All preparations for operation having been made, the patient should be anæsthetized and the outlines of the intussusception carefully studied. A rectal tube should be passed, care being taken that it does not double on itself. The ingested fluid should be allowed to run in by gravity, the pressure being gradually raised. It is probably best to have the patient's pelvis well raised. The operator should keep accurate track of the result by the sense of touch. His perceptions of the results should guide his judgment as to the necessary pressure rather than actual amount, but he must remember that after attaining a hydrostatic pressure of four feet, and even less with infants, he is treading on dangerous ground. Still, here even, conditions pertaining to the individual case must be his chief guide. If, as the result of the enema, the operator can absolutely recognize by the sense of touch that the intussusception has entirely disappeared, the operation may be *postponed*. If the intussusception recurs, operation is indicated.

In operating the author advises the use of mixed anæsthesia, commencing with chloroform and changing to ether, believing that the change stimulates the patient and lessens shock.

Operation. The incision should be a median one and sufficiently long to permit of easy manipulation. If the intussusception has not been definitely located and is not immediately felt, systematic search should commence at the ileo-cæcal valve. If the cæcum is collapsed, we know that search must be directed upward. The intussusception having been found, it should be examined by inspection over its

whole extent. The first glance may show that reduction is impossible or unwise. Attempts at reduction are best made in the direction of working the sheath away from the invagination rather than pulling the latter out; such a procedure often causes excessive tears of the gut at some adherent point. The abdominal cavity should be protected by pads. Should reduction be accomplished the gut should be carefully examined for any point of impaired vitality. If in doubt, gauze packing may be placed about the intestines, and sutures inserted in the abdominal wound, but not tied. Twenty-four hours will determine the question when the appropriate measures may be taken. If the intestine cannot be reduced, its vitality must be determined. This is a point that requires great judgment. If there is doubt, treat it as the gangrenous variety.

The methods of treatment open to the operator are artificial anus, entero-anastomosis, partial resection and typical resection. The artificial anus should be reserved for those cases whose general condition is so desperate that any further procedures must necessarily be attended by death. This is, however, true only of the small intestine, the large intestine offering better chances, though here the mortality is 50 per cent. of deaths following upon the operation.

Entero-anastomosis is a method that may be employed. Partial or atypical resection, or resection of the intussusception through an incision in the sheath, is an operation that is, under favoring conditions, simple and speedy, and sacrifices less intestine than a typical resection. Resection of the entire intussusception is probably more dangerous than the operation just mentioned, and will be employed less frequently the more generally the other form becomes known. It is preferable to the others when in entero-anastomosis there is hesitation at leaving a considerable portion of the gut to "take care of itself," or (rarely) technical difficulties in performing the entero-anastomosis, for resection of the invagination, failure to separate from adhesions, for either procedure if there is any suspicion relative to the non-septic condition of the intestines.

For the treatment of gangrenous intussusception the author recommends only: 1. Resection with immediate union of the divided intestine. 2. Resection with utilization of the divided ends for a temporary artificial anus.

The indications for one or the other operation are dependent upon the condition of the patient.

In after-treatment shock from loss of heat must be guarded against by keeping the patient warm in all stages and avoiding contact with moist cloths. Alcohol subcutaneously is advocated as one of the best stimulants, while strychnine is the drug next in importance. Camphor dissolved in olive oil is a most valuable subcutaneous agent. The subcutaneous injection of saline solutions is also favorably mentioned.

DEPARTMENT OF
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UNDER THE CHARGE OF

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Questions requiring an answer must be accompanied by postage, otherwise they will be answered only through these columns.

METHODS OF BLOOD EXAMINATION.—Dr. Henry Heiman, in a paper read before the Medical Society of the County of New York and published in the *N. Y. Medical Journal*, speaking of Malarial Disease, says, the various forms furnish one of the most fruitful fields for blood examinations. The method by blood examination has entirely superseded for diagnostic purposes the method that formerly prevailed—namely, the administration of quinine. So far as the type of malarial fever that is endemic in this city is concerned—the tertian—the blood test is positive, for we can always demonstrate this particular malarial organism in the peripheral circulation. For the practical demonstration of the parasite it is not essential to examine the blood during the chill stage, as has been customary. Plasmodia has often been found by him during the period of intermission. In the doctor's experiments he has most frequently found the organism during the height of the fever. It is during the fever state that he finds the spore-forming parasite, and this latter supplies the means of distinguishing between the tertian and other types of malarial fever, even in the absence of a clinical history. The spore-forming parasite, in contradistinction to the sterile form of the plasmodium, requires that the treatment be continued intermittently over a period of about six months in order to allow the spore to develop into the regular plasmodium, as the specific action of quinine is exercised only on the plasmodium and not on the spores.

The doctor says, in the diagnosis of malarial disease an important point is whether the patient has been previously exposed to the malarial poison or whether the present attack is the first of the kind. It is known that any number of attacks do not render the system immune; on the contrary, they predispose it to subsequent attacks. The quartan and crescent (æstivo-autumnal) or pernicious types are, as a rule, imported into the city. Osler states that the line of division between the tertian and the quartan and the crescent is the Chesapeake Bay. Before Osler's line of division was declared he never succeeded in distinguishing between the various forms of the plasmodia, but after the geographical distinction was drawn he had to seek for the quartan type in some locality entirely remote from this city, especially as no form of quartan ever came under his observation in New York. The first specimen of blood from a patient

suffering from a quartan type of fever came to him from Little Rock, Arkansas. An examination of this specimen convinced him of the importance of the diagnosis between the different forms of plasmodia. In the plasmodium of the quartan type the red cells do not appear swollen, the parasite itself appears smaller, the periphery is generally pigmented; its most characteristic feature is that it has fewer spores than the tertian, numbering about seven to eleven in the quartan and fifteen to twenty in the tertian. The crescent form is of a semilunar shape, hence its name; it stains no differently from the others, and is not endemic in this section of the country.

The malarial organism must be distinguished from (a) nucleated red cells, (b) degenerated red corpuscles, (c) plaques, (d) precipitation of dye, (e) fungi developed in the aqueous solution of methylene blue. A point of practical importance when staining for the malarial organism is always to be sure of finding the characteristic brown pigment in it. Many observers describe the flagella in connection with the organism, but he has not been able to demonstrate them in the tertian type, as it occurs in New York and vicinity. He believes that malarial disease is endemic in New York and its suburbs, especially in the vicinity of the river fronts.

Smearing.—The usual blood smearer is a glass slide about seven cubic centimetres and a half long, two cubic centimetres broad, and 0.3 cubic centimetres thick, edges beveled. This slide is preferable to the ordinary smearing of blood between two cover glasses. The slides are to be cleaned with soap and water to get rid of the dirt and fat, then thoroughly washed in water to get off the soap, then immersed in alcohol, taken out of the fluid without touching the flat surfaces, dried, and preserved in suitable jars. The drop of blood is obtained as follows: Cleanse the finger simply with water, then prick with an ordinary triangular surgical needle. This is best done by holding the needle obliquely, so that the periosteum is not reached. Avoiding the first drop of blood, bring the smearer in contact with the bleeding surface delicately, so that a small drop remains on the centre of the beveled edge of the smearer. In order to obtain a uniformly thin film of blood, allow the beveled edge of the smearer to remain in contact with the slide. This will insure a stretch of blood as wide as the smearer is itself. Then quickly spread the line of blood along the surface of the slide with slight and uniform pressure. It will be found that the white cells will naturally accumulate at the sides of the slide owing to their lesser specific gravity (?). The advantages of this method of smearing over the cover-glass methods are these: That the former is easier in its technics; secondly, a more uniform layer of blood is procured; and, thirdly, the specimen can be examined at once without the aid of a cover glass.

Method of Staining Suspected Malarial Blood.—The blood smeared in the way described above may be fixed at once by formalin vapor, or, when air-dried, by alcohol and ether or heat, or the fixing process may be postponed for some time. The specimen is stained with

eosin-alcohol solution for five minutes, washed well in water, dried with filter paper, then counterstained with concentrated aqueous methylene blue solution for two minutes, washed again in water, dried with filter paper, mounted in balsam, and examined with an immersion lens. As a rule, the plasmodia are found in the red cells, and are stained of a light bluish color, of various forms, depending on the stage of the disease. They have a characteristic small, brown, granular pigment in the sterile form, whereas they are clumped together in the centre or periphery in the spore form. The terms "hæmatozoon" and "hæmosporidion" are in use as synonyms of plasmodium, also "oscillaria" (Laveran), "hæmamœba." The crescent form is called, after its discoverer, *Laverania malarix*. A very important point in the microscopic diagnosis of malarial disease is that the blood is in a state of "hypoleucocytosis," used in contradistinction to "hyperleucocytosis," which occurs in some of the infectious diseases. In chronic malarial poisoning we seldom find the plasmodium present, the appearance of the blood however corresponds to that found in the several forms of anæmia.

IMMUNITY: NATURAL AND ARTIFICIAL.—The recent development of our ideas regarding immunity is traced in an interesting paper by Buchner, read before the Eighth International Congress of Hygiene and Demography at Buda-Pesth (*Munch. med. Woch.*), in which the essential differences between the natural immunity of certain animals to bacterial influences and the immunity artificially conferred by experiment are emphasized. The elaborate arguments embodying the results of the investigations of the past three years is summed up in the following conclusions:

1. The natural power of resisting infection, the so-called natural immunity, depends upon distinctly different conditions and causes from the artificially induced immunity. They are, therefore, essentially different conditions, which, from the scientific standpoint, should be kept quite distinct from one another, and investigated each for itself, although practically they may be coexistent in the same individual.

2. Natural immunity depends, on the one hand, on the bacteriacidal action of certain substances in solution in the organism, the so-called *alexines*, or, on the other hand, on an inherited insusceptibility of the tissues and cells of the body to the several bacterial poisons. This natural immunity cannot, as a rule, be transmitted to the body of another animal by means of the blood.

3. The leucocytes play an important rôle in the protection of the body by natural immunity, not as phagocytes, but through the action of soluble substances secreted by them. Phagocytosis is only a secondary function.

4. Artificial or acquired immunity depends on the presence of modified specific bacterial products, the so-called *antitoxines*, either in the blood, in the tissues, or in both. By transfer of the blood

these specific antitoxines can be transmitted to another organism, thereby conferring upon it artificial immunity.

5. The action of the antitoxines does not depend upon destruction of the specific bacterial poisons by contact with them, but occurs only in the animal body and by its participation. By the presence of the antitoxines a lower degree of susceptibility of the living cells of the body to the specific toxins of the bacteria is in some way induced, thereby rendering the body as a whole resistant to the action of those poisons.

DEPARTMENT OF RAILWAY SURGERY,

UNDER THE CHARGE OF

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INTRODUCTORY.

Railway surgery has a field wholly its own.

The mission of railway surgery should be :

To arrive at the highest stage of excellence in ability to treat the injured.

To establish the railway hospital as a fixed system in railway service, the better to execute the first great duty, and to give the most exposed class, the employee, the very highest and best surgical service combined with the greatest economy to both railway and sufferer, be he employee or passenger.

Prevention of injury upon railways as far as possible.

Improved sanitary measures in the interest of the general public in the transportation of passengers, to prevent infection or the spread of contagious diseases.

The editors of this department propose to give to the readers of the JOURNAL, in a condensed form, extracts from other journals relating particularly to railway surgery.

Surgical items, to consist of practical points gleaned from the editor's personal experience, and that of others.

We invite correspondence, contributions of brief practical papers and reports of cases, especially of emergency work.

SOME DUTIES OF THE RAILWAY SURGEON.*—By W. E. Travis, M. D., Covington, Ga.—It is well, Mr. President, that the title of our paper has the limiting word "some," for if we were to attempt to define or

* Read at eighth annual meeting of the Central of Georgia Railway Surgeons' Association, April 19, 1895.

consider all of the duties of the railroad surgeon, our time and perhaps your patience would be exhausted before our subject would be; so, in a modest way, we will confine ourselves to what we consider strictly requisite to this work.

The duty of the railway surgeon is threefold in its nature; it is, first, to the injured; second, to the public, and third, to the railroad.

His first and paramount duty is to the injured placed in his care. They should receive prompt, unremitting and skillful attention at his hands. In order to give this, he should not only thoroughly understand anatomy and general surgery, but should make a specialty of those injuries caused by heavy, ponderous forces, which result in lacerations and contusions, and compound or comminuted fractures. He cannot give too much time and study to the special features of this branch of surgery. He should profit by his own, and the recorded experience of others, and utilize all attainable information.

This department is, strictly speaking, emergency surgery, requiring a well-stored, cool, clear head, and ability to decide quickly and act promptly; there is no time to consult any text book as to the advisability of an amputation in a given case. Modern science has made possible the saving of many limbs for years of useful service which a few decades ago would have been unhesitatingly offered at the shrine of immediate amputation. These may call for long and tedious courses of treatment, without perfect assurance of ultimate success, but the value of a limb is not to be estimated by the time or labor of a surgeon. And yet, in his efforts to save limbs, he should use a discriminating judgment. To retain a part rendered useless by the loss of counterpart, to save all tissue possible in every case, would only serve to maim and burden the patient, a triumph of conservatism that, instead of meriting praise, should be classed as malpractice. The relative power of regeneration of the various tissues should receive thoughtful consideration. "The osseous tissues of the leg, for instance, may be literally comminuted, yet if the vascular tissues be sufficiently intact, amputation should be performed only as a 'dernier resort.' On the other hand the soft and vascular parts of the leg may be so mutilated and torn, with little or no injury to the bone, that amputation becomes not only conservative, but imperative."

Railway surgery, while comprising all that is common to general surgery, embraces much more in the superadded elements of crushing force and violence, embracing features distinctly peculiar to railroad traumatism. If we would attain to the ideal in railway surgery we should ever bear in mind the radical difference between railway traumatism and ordinary injuries. In the former the gravity of the case is increased by the crushing violence which involves not only the physical integrity of the parts but also overwhelms the vitality by means of nervous shock and consequent collapse. Departure from the rules which obtain in general surgery is frequently essential to success. In general surgery the ideal is to save as much tissue as possible; in railway surgery the conservation of the tissues should be

a minor consideration. The rule here should be whenever necessary to do an immediate operation to cut wide of the injury, otherwise you will frequently have an extensive sloughing of the parts that seemed to be intact. Reaction should be well established before an operation is attempted.

The element of shock should be carefully considered, and its treatment thoroughly understood. There is a difference in the shock from accidents happening in the daytime and those occurring at night, from the fact that the physical influence in those cases in which the person sees the danger which is unavoidable greatly increases the shock. It has been frequently demonstrated that one of the best agents in the treatment of shock is the injection of hot salt solution, 3 j to O j at 118 to 120° F., either per rectum, subcutaneously, intravenously, or directly into the arterial system. In very serious cases this solution can be injected into the femoral artery. In addition to its beneficial effects as to shock, it makes up for any loss from hemorrhage, but fortunately the loss of blood is not usually great, as the wounds are generally lacerated or contused instead of incised.

Mental suggestion is an important factor, and should be used as required to relieve the fears of the patient. A friend of mine, who is a surgeon for the B. & O. R. R., believes hot strong coffee to be one of the best stimulants, while others advise the use of strong tea. Strychnine administered hypodermically I consider most excellent, conjoined with the judicious application of heat to the affected parts. Alcohol, if used at all, should be very carefully used, as there is always a danger of marked depression following its exhibition.

The wounds inflicted in railroad accidents differ from those in regular surgery in that they are generally filled with cinders and grease and sometimes small bits of crushed bones. All these the surgeon should carefully remove, and for this the sharp curette is of no little service, with the additional aid of hot water, hand brush and pure soap. In all major cases we should wait a reasonable time for reaction, as loss of nervous innervation in any part will determine to a great extent the site of election. Nothing should be left undone that will add to the comfort of the patient, or that an improved medical science has declared necessary to his safety, it matters not at what cost of time and labor. In the language of Gross, the surgeon should have the "eagle's eye" of clear and intelligent judgment, the "lion's heart" of prompt and fearless determination, and finally the "lady's hand" for clean, gentle and dexterous execution.

In the second place the railroad surgeon owes a duty to the traveling public. Of this duty we need not to speak, as it belongs to the province of our chief surgeons, who wisely and carefully see to the sanitation of cars, and use all measures possible to prevent the migration of disease germs from one place to another, thus saving the country from many epidemics.

Lastly, the surgeon owes a duty to the road which employs him,

but in no case in his zeal to serve his road should he make the mistake of assuming the role of attorney, and try to settle claims for damages. This sometimes results disastrously for the railroad which he is trying to benefit. Chief Justice Coleridge, in a case in which such an effort had been made, refused a new trial on the ground that medical men had no right to huckster with the parties injured as to the amount to be received, and in consequence of this decision the plaintiff received heavy damages. Employes are only too eager to bring suits, and juries are generally prejudiced against corporations, and so great care should be exercised by the surgeon when called upon to act as a witness that his testimony be clear, truthful and impartial.

No railroad company desires anything but facts, or fears anything more in its medical and legal departments than deceit and falsehood. Prove to such a company that the character of a doctor in their employ can be impeached, and he will be dismissed on short notice. It is to their interest to be able to know that no amount of pressure that can be brought to bear upon him would cause their surgeon to vary a hair's breadth from the truth. He should feel under obligation to advance in every legitimate way the interest of the company who employ him, but this does not imply a sacrifice of truth or principle.

All honor then to this branch of the great tree of medical science. May it continue to grow and develop, drawing strength and knowledge from the parent stem, and in turn imparting to it strength and knowledge, ever reaching onward and upward, adding grace and symmetry to the whole, until the tree shall stand "perfect and entire wanting nothing," a thing of beauty and utility forever.—*Railway Surgeon.*

PROPOSED ASSOCIATION.—I beg to enclose herewith an announcement of the third annual meeting of the Association of Surgeons of the Southern Railway Company at Old Point Comfort, Va., June 21 and 22, 1898, and to extend an invitation to you to be present and to participate in the proceedings.

At the same time and place it is proposed to hold a conference of Chief Surgeons or other medical representatives of the principal railroads operating in Virginia, West Virginia, North and South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Texas, Arkansas, Tennessee and Kentucky, for the purpose of determining the advisability of forming an organization to be known as the "Southern Association of Railway Surgeons," or some other equally comprehensive name.

There are many good reasons for such an organization. The National Association of Railway Surgeons is too large to do effective work; its places of meeting are often too far removed for the annual attendance of the majority of southern members, and of late many of the large systems have tacitly discouraged the attendance of their

surgeons, and have declined to issue or request transportation on account of its meetings.

It is hoped you will attend the Old Point meetings or send a representative from your road.

C. M. DRAKE.

Atlanta, Ga.

P. S.—I have received favorable replies from nearly every road operating in the South.

C. M. D.

The above from Dr. Drake is self-explanatory, and we hope that all railroad surgeons, who can possibly do so, will accept the invitation of the doctor and attend this meeting. We need an association of this kind, and we predict a successful issue to the effort at effecting an organization. Come out and be in the swim.

PRACTICAL HINTS.—In removing plaster from hands after the application of plaster casts, it would be well to remember the therapeutical fact that syrup of lime is the strongest solution. And the application of a little sugar to the hands will be found to greatly assist you. The same rule applies to removal of casts.

In removing obstruction from hypodermic needles, fill syringe with water, screw on the needle and place in alcohol flame at point of obstruction using some pressure on piston. The steam generated will force out the obstruction. A number of useless needles will be made useful.

In removing adhesive strips which have been used as a dressing, a little ether poured on same will greatly facilitate it by dissolving the glue.

Never allow rubber plaster to come in contact with a surface uncovered by normal skin. Since it cannot be sterilized by heat, it must be considered as being dirty.

Before operating, always find out whether the patient has any malarial history. The discovery of this fact will save you many a bad scare when temperature rises suddenly after operation.

Dr. George Chaffee, editor of the *Railway Surgical Department* of the *International Journal of Surgery*, is already reaching out for material to make the next meeting of the New York State Association a success. Dr. Chaffee is the father of this association, and he sees to it that the child is well nourished.

We have attended several meetings of this association and always with profit. We would recommend to the officers of our associations in the South, that they follow the doctor's example and begin now to work up material for our next meetings.

Dr. R. P. Izlar, house surgeon of the Plant System General Hospital at Waycross, Ga., has been appointed by the Governor of Florida Chief Surgeon of the First Florida Regiment, U. S. Volunteer troops, with rank of Major. Dr. Izlar left for his post of duty May 23d.

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